Digitized by the Internet Archive
in 2018 with funding from
University of Toronto

https://archive.org/details/medjournalMar1951uoft

THE UNIVERSITY OF TORONTO
MEDICAL JOURNAL

VOLUME XXVIII TORONTO, MARCH, 1951 NUMBER 6

ALCOHOL ADDICTION

A. J. SHULMAN, M.D.

INTRODUCTION

In a list of psychiatric disorders encountered by the physician engaged in the general practice of medicine, alcohol addiction occupies a place of prominence. Although not as common a problem as psychoneurotic or psychosomatic conditions, it is nevertheless worthy of discussion because of the fact that the alcoholic patient is, as a rule, badly managed. Not infrequently the sequence of events occurs as follows: the physician is called in by the distraught wife to see the patient, who is haggard, restless, and tremulous, in consequence of his most recent bout. Necessary supportive measures are taken and within a day or two the patient is feeling better. The long-suffering wife then appeals for assistance in keeping her husband sober, and the ashamed patient is called into the office for a "talk". This usually consists of a number of admonitions by way of reminding him of his obligations and responsibilities, warnings about the incipient dangers of organic brain damage, and demands for a promise of sobriety. The patient has gone through all this many times before with his relatives, his friends, and his minister, and it is therefore not surprising that no matter how amenable he is to sweet reason and fatherly advice, and no matter how readily he swears, "No, never again!" it is not so very long before the next episode, and so the recurring cycle is completed. In time everyone's patience is exhausted; his family disowns him as an incorrigible, the doctor rejects him as a "psychopath", and the patient drifts into the lower reaches of Skid Road.

Fortunately, the above sequence is not predestined; on occasion some timely and appropriate intervention in the patient's life is successful in interrupting the cycle with the result that the patient can then establish a more or less adequate adjustment. It is with the intention of removing this happy resolution from the area of chance to the area of scientific therapy, that there has been much psychiatric research into the nature, the aetiology, and the treatment of alcoholism. In this paper will be discussed a number of principles, of varying degree of established scientific validity, concerning this disorder.

DEFINITION OF ALCOHOL ADDICTION

Addiction is commonly defined as the continual and uncontrolled use of alco-

Crease Clinic of Psychological Medicine, Essondale, B.C.

holic beverages so as to interfere drastically with the patient's functioning, in any or all of his spheres of action—in his work, in his home, or in society generally. (1)

The principal criteria for establishing the diagnosis are then two:

1. Lack of control in drinking,
2. Impaired adjustment as a consequence of this lack of control.

Patterns of addiction vary, but as a rule one or other of the following two descriptions will apply. In the case of the periodic drinker, weeks or possibly months of sobriety intervene between episodes of severe intoxication lasting for several days or more. The patient goes on a debauch, drinking steadily until he is insensible, or nearly so, then stops drinking either willingly or under compulsion, remains sober until he has straightened out his affairs and seems well-established, only again to fall from virtue. The other common pattern is that of less severe, but continuous drinking, extending over months or years. In this situation the alcoholic habitually consumes a quart or so of spirits every day, and carries on in a state of perpetual semi-intoxication.

These descriptions apply to the confirmed alcoholic. Upon analyzing the history of the drinking habits of such an individual, we commonly find that preceding the onset of clearly-defined alcoholism, there is a period of varying length during which the patient manifested what is called "alcohol dependence". (2) This term is applied to a person whose consumption of alcohol, although insufficient to interfere with personal functioning, is nevertheless determined by neurotic needs, so that drinking occurs compulsively. The person finds that he cannot perform adequately in certain situations without a few drinks under his belt. The patient may report that long before his drinking was a problem, he found that he could not go to a dance, enjoy the company of friends, or approach an employer for a job, without some degree of alcohol-induced disinhibition.

It may be seen that alcohol dependence, in addition to being a premonitory symptom of addiction, is also a diagnostic label that can be applied to a large number of social drinkers who, in spite of this dependence, do not become alcoholics. As a matter of fact, in a sense the label can be applied to all of us whose social drinking is determined by feelings that we are much better company, that we can enjoy ourselves in much more relaxed fashion, when liquor is served. Parenthetically, this almost universal alcohol dependence can be related to the high level of anxiety that is commonly found in interpersonal relationships within our culture.

THE DIAGNOSIS OF ALCOHOL ADDICTION

The earliest symptoms then will be the manifestations of alcohol dependence. As suggested, these symptoms are sufficiently common in society at large so as to be of little diagnostic value. However, the dependence varies in degree, and when it presents itself clearly, it should be an adequate warning. Thus if one sees a man rely on his preprandial cocktail to such a degree that he cannot sit down to his meal without it, one can feel reasonably sure that the man is a potential alcoholic. Similarly, such an opinion can be given of a person who will not go to a social gathering at which liquor is not being served.

The confirmed alcoholic is not hard to identify. In the first place, his consumption of alcohol is considerably greater than custom generally permits. This in itself is an unreliable criterion, because the amount of intoxicants habitually consumed varies considerably among different sections of the population. However, when this increased consumption is associated with certain deviations in drinking habits, such as solitary or morning drinking, or periods of intoxication extending over several days, one is justified in stating that the problem has assumed the proportions of an addiction. Finally, when the person's drinking results in loss of work, social embarrassment, delinquencies, or somatic complications, there can be no doubt as to the severity of the problem. (3)

It is relevant to point out that the patient's own statement in this regard cannot always be accepted at face value. Characteristically, he will tend to minimize his symptoms, to insist that his drinking is under control and that he can stop any time he wishes.

This is, of course, untrue. Since alcohol, as we shall see, serves the function of satisfying certain personal needs, strong enough in their demands so that the individual must depend on alcohol to quiet them, he therefore cannot control his drinking, any more than he can control those usually unconscious needs that determine it.

THE AETIOLOGY OF ALCOHOL ADDICTION

The term "alcohol addiction" is used here rather than the alternative "chronic alcoholism" because of the ambiguity of the latter term, which is sometimes employed to refer to the state of organic brain damage induced by alcohol. However, although the word "addiction" is preferred, it nevertheless has a misleading connotation, tending to establish the problem on the level of physiological processes. In the literature there can be found many theories of a pseudo-physiological sort, varying from conceptions involving some particularly bizarre type of allergy to hypotheses concerning adrenocortical-pituitary relationships. Such views are quite unhelpful in the understanding and treatment of the disorder.

It is not within the scope of this paper to discuss these organic theories; perhaps it will be sufficient to state that the real problem is not the effects of alcohol on the addict—apparently much the same as on ordinary subjects—but the question as to why the alcoholic, knowing the consequences of his intemperance, still continues to drink. To put it another way, it is possible, although unlikely, that alcohol has some peculiar effect on the addicted individual so as to cause him to keep drinking once he has started; if so, what is it then that makes him take the first drink that sets the process in motion? The suggestion that some as yet unknown metabolic disturbance sends a man in search of a specific toxic agent, much as the salt-deprived cow wanders in search of a lick, is, to say the least, rather fanciful.

Stated tersely, the real problem appears to be this: the alcoholic suffers from some personality damage, from some psychological difficulties, so that he must imbibe excessive quantities of alcohol in order to function and be reasonably comfortable.

The values of alcohol to such a person fall into two general categories:

1. Hypnotic and Depressive Effects.
2. Symbolic and Associated Meanings.

In the first category can be mentioned the action of alcohol as a sedative, (inasmuch as it relieves the tension and anxiety that customarily cripple the patient), its value in producing the semi-suicidal oblivion desired by the man who finds living intolerably painful, and its disinhibiting action allowing the expression of certain needs—sexual, dependent, or aggressive—the spontaneous expression of which is fraught with anxiety.

In the second category belong the association of alcohol with conviviality, drinking as a symbol of good-fellowship, drinking as a symbol of masculinity of the "he-man" sort, and drinking seen as the symbolic dependence on a nurturing fluid.

For a particular patient any or all of these values may be operative, depending on the congeries of needs and psychological dynamisms at work. There are differences from patient to patient, not only in the needs and values associated with the use of alcohol, but also in the manifest psychiatric syndrome. Thus alcoholism may be a symptom of a psychosis: for example, not uncommonly, the excessive use of alcohol may appear in the early stages of a schizophrenic breakdown. Addiction may also be found in anxiety or obsessional neuroses, in which alcohol serves primarily as a sedative. In all such cases the complicating symptom of alcoholism may be neglected in favour of the aetiological and therapeutic study of the patient from the point of view of his principal illness.

The majority of patients, however, do not suffer from any psychiatric disorder to be found in the nomenclature. Even though anxiety symptoms are frequently found, they are not, as a rule, severe enough to justify the diagnosis of a neurosis. The label "psychopathic personality" is also at times applied to them, if only in virtue of the fact that alcohol addiction is a form of antisocial behaviour. However, this generally unsatisfactory diagnosis is of little value in conveying meaningful information about the patient.

In spite of the fact that alcoholics do not readily fit into any of the usual pigeonholes, it is not to be believed that they are "normal". (4) In either or both of two ways the patient reveals his mental illness: the needs that determine the drinking may be pathological (a chronic, sustained hostility, for example), or if the needs *are* constructive and healthy, the use of alcohol as a means of satisfying these needs is an indication of the patient's inability to satisfy them in a more appropriate fashion (the use of alcohol by a person who is self-conscious and socially unskilled in his attempts to establish friendly relations).

Thus it may be stated that the alcoholic suffers from a personality disorder; signs of this disorder appear not only in his drinking, but also in his sober every-day living. Commonly, he has difficulties with his job, with his wife, and with his friends. It is sometimes argued that these difficulties are produced by alcohol; more careful analysis inevitably reveals that personality problems anteceded the drinking and may continue long after it has stopped.

Now, the kinds of personality disorder will be as numerous as there are personalities under consideration—no two people are alike. However, there is a particular concatenation of personality traits, and a particular developmental history, which is found quite frequently

and which is therefore worthy of special consideration. It will be noted that the following discussion applies only to male alcoholics; for reasons that will not be enumerated here, this disorder was until recently very rare among women, and although the incidence is rising among them, it is still the male patient who is generally seen.

THE ALCOHOLIC PERSONALITY

Superficially, this sort of individual might be characterized as having a "salesman" type of personality. (Incidentally, the occupation of salesman is extremely common among alcoholics—or alcoholism is common among salesmen). He is bluff, hearty, exudes good-fellowship and bonhomie, and he lays great stress on the importance of being able to get along with others. It is highly revealing to see a group of alcoholics together—there are loud greetings, much back-slapping and effusive conversation, and warm and sentimental farewells. However, if the observer is sufficiently acute, he will be able to detect a false note in all this gaiety; the good feeling seems forced and the friendliness artificial. When one gets to know the alcoholic one discovers that he is, underneath the facade, extremely lonely and anxious in his interpersonal relations, although he tries to conceal this from both himself and others by means of "selling himself". This set of traits is so characteristic that the author on one occasion was able to make a diagnosis of alcohol addiction on the basis of a brief social interchange, without any knowledge of the man's drinking habits.

Partly as a result of this social anxiety, the alcoholic is not often found participating in a group. (5) As a rule he belongs to no societies or clubs, and has few friends other than his companions of the bottle. Even if he is married and living with his wife (a relatively rare circumstance), he takes little part in family activities. From the point of view of meaningful group participation he is extremely isolated.

This isolation is reinforced by many other characteristics. The alcoholic lays great value on masculine behaviour but defines such behaviour in terms of an adolescent stereotype, according to which a man is measured by the amount of liquor he is capable of consuming without falling under the table, by his command of profanity and obscene language, and his sexual prowess. He considers that a man is really a man only if he can drink hugely without becoming drunk, if his language is earthy and concrete, and if he can seduce a multitude of women with facile proficiency. Under these circumstances, he has considerable difficulty in adjusting to groups of adults, who consider such attitudes immature.

His attitude to women is actually more complicated than the above remarks would suggest. He is typically ambivalent; on some occasions he regards them as sexual objects to be used and exploited, but on other occasions he sees them as sentimentalized, glorified mother-figures to whom he looks for nurturance and support, or alternatively, against whose dominance he rebels.

He displays a somewhat similar ambivalence to male authoritarian figures. To his physician or his employer, he will at times adopt an attitude of passive, submissive dependence, asking for and expecting guidance and advice, and at other times, when he becomes sensitive to the authority that is being exerted

upon him, he will suddenly rebel and go out and get drunk.

His goals and aspirations are extremely high, and generally are of a materialistic nature, involving the acquisition of a large amount of money and the achievement of fame. Yet he is generally unable to persist in the endeavour necessary to reach his goals; he has a low tolerance both to routine and to frustration, and he is readily discouraged. (6) Consequently there is a considerable discrepancy between his achievement level and his aspiration level, and his employment record is uneven. (7).

DEVELOPMENTAL DYNAMICS OF THE ALCOHOLIC PERSONALITY TYPE

Just as in the discussion of the personality traits, it must be emphasized here that there is no one account that will apply to all cases. The following is an attempt to abstract certain salient features from the kinds of family background and development discovered. (8)

The mother may or may not be the dominant parental figure, but in either case, she is for the patient the more significant parent. She is, as a rule, possessive, over-protective, and "sissifying", and smothers the patient in his constructive attempts to grow up. She may achieve this by outright domination or by a martyr-like submission, but uniformly she succeeds in tying her boy to her apron strings. She may be extraordinarily neurotic, hypochondriacal, covertly hostile, and masochistic; on the other hand, she may be relatively well-integrated and stable. In either case, her life is centered about her son, and she creates in him a marked insecurity concerning his capabilities for independent achievement, and a strong need for passive dependency.

The patient's relationship to his father may be described as being a distant one, so that the father is not available as a figure for identification and imitation. Nor is he sufficiently effective as a parent to counteract the noxious influence of the mother. However, here too there is considerable variation: commonly in the literature the father is described as being stern and despotic; actually he is frequently passive, inadequate and ineffectual. At any rate the child cannot learn those male role-taking skills required in our society.

Now this sort of family constellation is, of course, by no means peculiar to alcoholics. The singular feature is not the background, but certain contingent events occurring later in the patient's life, usually in the adolescent period. If these did not occur, the patient might just grow up into a rather passive, dependent individual with or without marked neurotic conflicts and defences. The path that the alcoholic takes seems to be determined by certain chance circumstances, which appear to occur in this way:

In his adolescent years the patient seeks out, or is forced into, the company of a gang of rowdy boys with whom he is at marked disadvantage because of his passivity and lack of aggressive self-assertion. In the face of this inferiority, his self-esteem suffers a severe blow, and in his attempts to regain some measure of confidence, he sets in motion certain highly significant processes.

First of all, he attempts to repress all his passive needs and to establish a new concept of himself as a "good guy", a masculine "he-man". But as

we know, repression of well-established needs does not eliminate them; it merely drives them underground. Thus from then on, the behaviour of the future alcoholic is, to a considerable degree, determined by the conflict between his manifest need to confirm his own masculinity and his unconscious demand for passive, dependent gratification. A highly precarious equilibrium is established in which the patient tries to satisfy these conflicting needs at the same time.

He becomes aware of the discrepancy between his submissive behaviour in relation to his mother and similar figures, and his new masculine ideal. Therefore he begins to rebel strenuously against authority—he leaves school, stays out late with the gang, refuses to go to church, and so on. Nevertheless, because of his dependence, he does not manage to break away completely, and this adds to his hostility and guilt.

It is the semi-delinquent adolescent gang, or some equivalent association of the young, that really moulds his character into the alcoholic pattern. The unskilled, passive boy is at a tremendous disadvantage in relation to his aggressive companions. He tries to relate to them, but remains anxious and lonely in the crowd. However, by watching them, he observes that it is not too difficult to pretend that nothing is wrong—all that is necessary is to adopt certain behaviour patterns which the group approves of; even if these patterns are not congenial to his personality, still they can be assumed and thus everyone, including himself, is fooled. The group is loud, profane and energetic. Among them it is a mark of prestige to rebel, to have numerous sexual relationships, and to be able to drink like a man. Since the group presents this sort of behaviour, and gives evidence that they consider it to be the hallmark of the aggressive, assured masculine figure, the patient, who suffers from extreme doubts as to his qualifications for the masculine role, makes strenuous attempts to learn this behaviour. Now, the other members of the group gradually acquire more adult values and skills and in time relinquish this adolescent pattern. The alcoholic, however, cannot do so; his repressed passive needs remain with him, and he cannot afford for one minute to stop to examine the situation. Thus from his adolescence, drinking has a compulsive quality—he must drink to reassure himself of his masculinity.

This sequence of events is intimately related to all the personality traits manifest by the adult alcoholic. His bluff, profane, back-slapping good-fellowship stems from the adolescent caricature of the aggressive, self-confident male. His fixation on an adolescent level is also displayed in his grandiose aspirations, his lack of perseverance, and his intolerance to routine. His ambivalent attitude to authority is an expression of the conflict between his passive needs and his picture of himself. His sexual exploitation of women is retained from the adolescent gang, and his ambivalent vacillation between dependence on and rebellion against idealized mother-figures is similar to the relationship that existed between him and his mother. He has learned only one type of group-relationship, and he can find companionship only in the closest replica of the gang available, that is, a crowd of men in a tavern.

COMPLICATIONS OF ALCOHOL ADDICTION

The medical illnesses attendant upon the excessive use of alcohol will not be discussed; the role of alcohol in the aetiology of such diseases as portal cirrhosis, polyneuritis, and various nutritional deficiencies is adequately discussed in a number of text-books of medicine. However, a brief summary of the complicating psychiatric disturbances will be attempted. These disturbances can be classified as either organic (deficits resulting from cerebral neuronal damage), or functional (psychological difficulties in which alcohol is a participant).

The *organic* alcoholic psychoses can be further broken down into acute and chronic forms. The acute forms, the classic example of which is delirium tremens, are, from the point of view of symptomatology, very much the same as deliria resulting from other toxic agents and can be correctly diagnosed only if a history is available. The symptoms consist of disorientation, memory loss, vivid hallucinations, and marked anxiety. From this acute illness the patient may recover, pass into a chronic organic state, or become comatose and die.

The chronic organic psychoses (Korsakow's and simple alcoholic dementia) are similarly non-specific in their symptomatology, and present, as evidence of brain damage, the usual manifestations of defects in abstract thinking, memory loss, failures in judgment, and so on. (9)

With regard to the *functional* complications, it is only in a limited sense that they can be properly regarded as being "caused" by alcohol. Primarily, they develop in consequence of the progression of those personality difficulties that were responsible for the excessive use of alcohol in the first place. Thus, an individual displaying that kind of personality distortion that is commonly termed "schizoid" may, as his conflicts and problems in personal relationships increase, in time develop a frank schizophrenic psychosis; even if he happened to show alcoholism as a symptom of his incipient illness, it would be invalid to place upon alcohol any great aetiological significance.

Nevertheless, there are two ways in which such disturbances can be correctly regarded as complications. In the first place, whatever interpersonal difficulties a man may have originally had, these are usually increased by his drinking. Social stigma, the rejection of family and friends, loss of jobs, decreased self-esteem from feelings of being different, all aggravate the personality problems that were present before, and all further complicate living. Consequently, alcohol addiction may in this sense precipitate a psychosis which otherwise might have remained merely as a latent disposition.

The second way in which alcohol facilitates the development of functional psychiatric illness is an indirect consequence of its toxic properties. Through the disturbance of perception, through the disinhibition of cortical control, and through interference with repressing mechanisms, the immoderate use of alcohol allows for the emergence of conflicts and anxieties that might have remained under cover, had the patient retained a completely intact cerebrum. A similar process is frequently found in organic psychoses with functional symptomatology, *e.g.* senile psychosis with paranoid features. (9)

These two processes are probably the most significant factors involved in the development of those functional psychoses to which the adjective "alcoholic" is prefixed—alcoholic hallucinosis, and alcoholic paranoia are the principal examples. Again it must be emphasized that the basic cause is to be found in the personality of the patient, independent of his use of alcohol.

TREATMENT

There are two objectives in the treatment of the alcoholic patient:

1. Elimination of the addiction.
2. The psychotherapeutic cure, or at least the amelioration, of those personality difficulties responsible for the addiction.

With regard to the former, it must be pointed out that under ordinary circumstances, this objective can be accomplished only by complete abstinence. Although it is both theoretically and practically possible for an individual with or without therapeutic assistance, to resolve his conflicts so successfully that he can then drink as others do, it is, nevertheless, sufficiently unlikely to be ignored as a possible result of treatment.

Another point to be made is that although the achievement of the second objective will invariably result in the achievement of the first, the reverse does not hold. Possibly it is fortunate that it is extremely difficult to cure the addiction without also effecting some degree of personality change; a patient may be "strong-armed" into stopping drinking but on certain occasions he then develops psychiatric symptoms far more alarming than the ones he had previously shown. In this fashion we see a switch to some more toxic drug or even the occurrence of a frankly psychotic syndrome. One patient, inadequately treated by the author, committed suicide shortly after he began taking Antabuse. One must beware of treating the symptom and ignoring both the patient and his disease. Needless to say, when alcoholism is but a part of a major psychiatric illness, it is this illness that must be treated.

In the category of symptomatic therapies belong conditioning with Emetine (10) and the administration of Antabuse. (11) The former consists in giving emetic drugs followed by an alcoholic beverage. Careful dosage and timing are essential so that emesis invariably occurs, and then only after the ingestion of the drink. After a number of such treatments a conditioned reflex is established, so that the sight, smell, or taste of alcohol leads to vomiting. The chief objections to the treatment, in addition to the one mentioned in the previous paragraph, are the dangers of cardiac or hepatic complications, the technical difficulties of the procedure, and the ease with which the conditioned reflex is extinguished.

In this country, conditioning has been largely replaced by the use of Antabuse. After the ingestion of a few grams of Antabuse, less than an ounce of alcohol will produce intense discomfort—tachycardia, flushing, dizziness, vomiting—resulting from the blocking of the metabolism of alcohol and the formation of acetaldehyde. The treatment consists in maintaining the patient on a daily dose of the drug for an indefinite period of time, so that through fear of the consequences he will not drink. The objections to this treatment are these: first, it is not without danger both to the liver and to the cardiovascular system, and several deaths have been reported. (12, 13) Secondly, there is no

way of insuring that the patient will continue to take his Antabuse. (Again we see the necessity for working with the personality of the patient and his significant motivations—unless these are altered, he will "forget" to take the drug, and begin drinking once more.) Finally, there are some patients who will continue to drink in spite of the distressing antabuse-alcohol reaction.

In consequence of all this, one is forced to the conclusion that psychotherapy, in some form or other, is essential. This may not be scientifically planned and given; the activities of Alcoholics Anonymous are essentially psychotherapeutic, and in a somewhat haphazard, inspirational and sentimental fashion, the members of this organization apply psychological principles that are extremely relevant to the particular difficulties of the alcoholic. It is probable that in considerable measure, the successes credited to many therapies have been due more to the efforts of this society than to the activities of the doctor.

It is not within the scope of this article to give an adequate presentation of the theory and techniques of psychotherapy. These can be found in a number of books on the subject. (14, 15) There are, however, a few specific principles that should be mentioned.

First of all, as with all patients who manifest some kind of anti-social behaviour as part of their symptomatology, one must avoid a censorious, moralistic attitude. Although it is necessary to be consistently firm in pointing out that the patient's attempt to make light of his drinking is but an evasion of the problem, it is also necessary that the patient feel that he is dealing with someone who wants to help and not to preach. It requires considerable skill to tread the narrow line that divides excessive indulgence and permissiveness from absolute authoritarianism.

The patient may insist that he can control his drinking, that it never amounted to much, that anyway he has already decided not to drink again. Gently, but firmly, it is necessary to point out the fallacy of these arguments, so that it is possible to arrive at a consensus as to the need for treatment. Frequently this is the hardest part of the programme; yet unless the patient has sufficient motivation to do something about his problem, or unless it is possible to work with him until he develops such a motivation, further treatment is useless.

Having arrived at an agreement with the patient that he is addicted, it is then necessary to discover what personality processes are responsible for the symptom. Here the doctor must keep in mind the distinction between reason and rationalization. The patient, if he is at all typical, will offer a plethora of the latter—his wife nags him, his work is uncongenial, his associates all drink. One must then demonstrate to the patient that these problems are not at all uncommon; why does he handle them in the way he does?

If the doctor is properly sensitive and alert, and knows how to listen, the patient's behaviour, his utterances and attitudes, will gradually reveal those significant characteristics that determine his use of alcohol as a solution to his problems. The manner and timing of the interpretation to the patient of his relevant psychological processes is a matter of experience and judgment.

Of course, this sort of insight psychotherapy is not applicable to all patients,

nor does it fall within the range of skills of many doctors. Frequently one must compromise with palliative measures. Probably all patients should be encouraged to join Alcoholics Anonymous; no matter what treatment they receive, they will generally find considerable support, otherwise unavailable, within the organization, and for many patients the conversion experience that AA offers will be more efficacious than time-consuming psychotherapeutic efforts.

Other procedures of a directive sort may be adopted when they appear to be suitable to the needs of patients for whom insight is impossible. It may be necessary to instruct the patient in hygienic living, to encourage him in developing hobbies and diverse interests, to assist him in acquiring satisfying social experiences. At times measures directed towards the relief of anxiety and tension may be indicated—hydrotherapy, massage, relaxation exercises. It is usually unwise to prescribe barbiturates—the danger of substituting barbiturate for alcohol addiction is too great. The list of therapeutic possibilities extends as far as the ingenuity of the physician.

At all times it is imperative to keep before the patient the fact that he cannot and must not drink. It is not that the doctor will reject and disown him should he slip; relapses can be expected, but the ultimate goal is the state in which he need no longer depend on alcohol for his satisfactions and security.

BIBLIOGRAPHY

1. Jellinck, E. M.: Effects of Alcohol on the Individual. Vol. 1. Alcohol Addiction and Chronic Alcoholism. Yale University Press. New Haven. 1942.
2. Myerson, Abraham: The alcohol dependent. Quart. J. Stud. on Alcohol, **7**: 341-345, 1946.
3. Jellinek, E. M.: Phases in the drinking history of alcoholics. Quart. J. Stud. on Alcohol, **7**: 1-88, 1946.
4. Knight, R. P.: The psychoanalytic treatment in a sanatorium of chronic addiction to alcohol. J.A.M.A., **111**: 1443-1447, 1938.
5. Bacon, Selden D.: Inebriety, social integration and marriage. Quart. J. Stud. on Alcohol, **5**: 86-125, 1944.
6. Buhler, Charlotte and Lefever, D. Welty: A Rorschach study on the psychological characteristics of alcoholics. Quart. J. Stud. on Alcohol, **8**: 197-260, 1947.
7. Fry, H. C.: Alcoholism: A Study of Certain Characteristics of Environment and Personality. Master's Thesis. University of British Columbia. Vancouver. 1950.
8. Chassell, Joseph: Family constellation in the etiology of essential alcoholism. Psychiatry, **1**: 473-504, 1938.
9. Cameron, Norman: The Psychology of the Behavior Disorders. Houghton Mifflin Company. Boston. 1947.
10. Shadel Sanitarium: Alcoholism; Collected Papers. Seattle. 1948.
11. Martensen-Larsen, O.: Treatment of alcoholism with a sensitising drug. The Lancet, **225**: 104-105, 1948.
12. Jones, R. O.: Death following the ingestion of alcohol in an Antabuse treated patient. Canad. Med. Assoc. J., **60**: 609-612, 1949.
13. Glud, Erik: The treatment of alcoholic patients in Denmark with "Antabuse". Quart. J. Stud. on Alcohol, **10**: 185-197, 1949.
14. Rogers, C. R.: Counseling and Psychotherapy. Houghton Mifflin Company. Boston. 1942.
15. Levine, Maurice: Psychotherapy in Medical Practice. The Macmillan Company. New York. 1942.

LOW BACK PAIN AND TREATMENT BY MANIPULATION

F. L. MOFFAT, 5T1

THE AIM OF THIS article is to give to the student a brief view of the diagnosis and non-operative handling of low back pain.

Little is known about the pathology of backache, as rarely does a patient die from it. Backache is merely a symptom-complex and yet, as Walter Mercer wrote, "No problem has been more perplexing than the low back pain of orthopaedics." The treatment of low back pain is exploited by many unorthodox practitioners who will unfortunately always have some following. Therefore, it is up to the medical profession, knowing the dangers of treatment by the unqualified, to obviate any real justification for patients attending their clinics. I refer specifically to the chiropractors with their theories of nerves conveying vitality to tissues and their assumption that any pressure upon these nerves so lowers the vitality of the tissue supplied that disease or pain logically follows.

AETIOLOGY

We must realize that pain localized in the low back region is a symptom and not an entity.

REFERRED PAIN

The pain may be referred and originate in a place apart from the area apparently involved. It may come from abdominal lesions and chest lesions; from pelvic derangements and inflammatory processes—bladder, prostate and seminal vesicles in the male, and bladder, uterus and adnexa in the female; from organs lying contiguous to the dorsum of the body—the abdominal aorta, kidneys, retroperitoneal glands; from the hip joint.

CONGENITAL DEFECTS OR ANOMALIES of the lower back bony structure—vertebral bodies, pedicles, laminae, intervertebral facets and disks, transverse processes and the sacrum and lumbosacral joint.

Muscle balance is as important a factor as bone integrity in the normal alignment and musclar efficiency of the spine. Congenital defects cause unequal muscle pull on the spine and an alteration in the weight-bearing line because of the resulting deformity. This causes a condition of abnormal stress and strain which in many instances exerts little or no painful influence in early years. This causes their neglect sometimes to a degree where neither conservative nor operative treatment are of much use. There are six important congenital lesions:

(1) increased angle of the lumbo-sacral junction
(2) defective articulation between the fifth lumbar vertebra and sacrum—spondylolisthesis, spondylysis
(3) sacralization of the fifth lumbar vertebra
(4) spina bifida occulta of the first sacral segment
(5) spinal clefts
(6) anomalous facets

POOR BODY MECHANICS

The normal spinal curvature may change from unequal muscle pull as a result of poor carriage or bad posture. This frequently causes a vicious circle with increasing fatigue causing a greater deformity, with this in turn accentuating

the fatigue. In children, this often causes a lowered stamina, and in the adult pain and fatigue referred either to the mid-dorsal region between the scapulae or the lower back level. The same deformity may have origin in one or more of a number of places in the body. Three of the common syndromes are:

1. A chronically painful or malformed foot with a partial shift of weight-bearing to the opposite extremity and unilateral strain transmitted to the pelvis and low back.

2. Pronation of the ankle.

If this is marked, it is accompanied by internal rotation of the tibia, knee joint and femur. Chronic internal rotation of the femur causes a concomitant stretching of the external rotators of the thigh including the Piriformis. Since the sciatic nerve emerges immediately beneath the Piriformis, stretching of the latter may give rise to sciatic irritation.

3. Exaggerated spinal curvatures with marked lordosis.

In the characteristic picture, the pelvis is elevated behind and held by the contracted Sacrospinalis muscle and is rotated downwards and backwards in front where it is held by the contracted Tensor Fascia Lata. The lower abdominal wall is relaxed and pendulous and is accompanied by a compensatory thoracic kyphosis, flat chest and a forward and downward tilt to the head.

Inflammatory conditions

1. Acute (a) fibrositis, myositis

(These are extremely rare entities although an idiopathic low back pain is frequently diagnosed as such.)

(b) inflammation of efferent nerves

2. Chronic—tuberculosis of the spine (usually in the thoracic region), syphilis (rarely any pain unless extensive with destruction and dislocation), osteomyelitis, typhoid spine.

Arthritis

1. Osteoarthritis with lipping.

Ankylosis rarely occurs and this condition per se is rarely sufficient to cause backache.

2. Marie-Strumpell arthritis.

In the early stages, pain characteristically is either in the back or radiating to the buttocks or down the lower extremities. In the later stages with ankyloses and obliteration of movement, there is a release from pain.

3. Traumatic.

4. Infective.

Tumours in bone—seen in younger as well as in older individuals.

1. Benign—osteoma and osteochondroma, giant cell tumour, haemangioma.

2. Malignant—metastatic (breast, prostate), multiple myeloma, osteogenic sarcoma, Ewing's tumour.

Trauma

No matter how slight, its importance should never be minimized. There are two points of interest:

1. Pain arising in the lower back may be referred as a reflex phenomenon throughout the distribution of the lower lumbar nerves to the back of the thigh and outer side of the leg. Steindler has shown that sciatica may arise reflexly in any low back strain whether or not there is direct compression of nerves. Also, if compression is a factor, the signs and symptoms are alike whether the pressure is within the spinal canal, in the intervertebral foramina or in the peripheral nerve course in the lumbar and gluteal regions.

2. The same muscle guard is observed whether the cause be painful muscles, painful ligaments, joints or irritated nerves.

Trauma may cause:

(1) myofascial and ligamentous injuries

(a) strain of the Sacrospinalis or gluteal muscles especially at their periosteal attachments

(b) fascial contractures and adhesions following strain

(c) strain of the innumerable ligaments which contribute to the stability of the lower back-sacro-iliac, lumbo-sacral, interspinous, etc.

(2) joint injuries

(a) strain or subluxation of the inter-articular, sacro-iliac or lumbo-sacral joints

(b) strain of previously arthritic joints

Often an injury is merely an exciting factor which lights up a previously existing arthritis.

(3) intervertebral disk injuries

(a) rupture of the posterior common ligament with retropulsion of the disk into the spinal canal or intervertebral foramen

The injury may immediately precede the onset of symptoms, or there may be an interval of months.

(b) fibrosis and hypertrophy of the ligamenta flava often gives an identical clinical picture.

(4) fracture

(a) lumbar compression fractures—these are frequently overlooked and often manifest themselves as a chronic and debilitating backache which sometimes can only be cured by spinal fusion. It can usually be corrected immediately if recognized early.

(b) vertebral arch with spondylolisthesis

(c) sacrum or coccyx

Often with a spontaneous fracture, decalcifying diseases such as hyperparathyroidism must be ruled out.

(5) Kummell's disease

This is a rarefying osteitis of one or more vertebrae, some of which may show wedge deformities. The lesion follows weeks or months after spinal injury at which time the patient complains of pain at the involved site. This generally develops in young adults and involves the dorsal vertebrae. It is exceedingly rare in the lumbar region.

Neurologic conditions

Often a spinal cord tumour must be differentiated from a ruptured nucleus pulposus or an hypertrophied ligamentum flavum.

Often the low back pain is caused by a *combination* of the aforementioned conditions.

There are many instances of severe pain in the spine in which there is no deformity whatsoever. It is difficult to know whether or not such patients are malingering. Also there are many cases with deformity very pronounced but no pain.

INVESTIGATION

Successful treatment of low back pain is wholly dependent on an accurate and proper diagnosis. The most important single factor is a complete and detailed history, always keeping in mind that the cause of backache may be intrinsic or extrinsic.

History

Search through the patient's background with special reference to any low back pain. In this regard, there are three special facts:

(1) mode of origin (a) insidious
(b) after injury

(2) type of pain (a) static
(b) constant
(c) day or night

(3) means of relief—rest, heat

There are many other pertinent facts such as a complete history of previous attacks and associated symptoms; any history of trauma; sequence of symptoms; how the patient stands, sleeps, sits and type of bed used, relation of attacks to activity, diet and infections; any previous treatment used and its effectiveness.

PHYSICAL

Only after the history is complete should a physical examination be performed, unless the diagnosis is obvious. A physical examination should include a rapid general check-up of all systems followed by a detailed study of the back. The patient should be stripped and then the back examined by inspection, palpation, active and passive movement, and a neurological examination if indicated.

INSPECTION (1) posterior, lateral and anterior views

(2) leg measurements

Posterior View

(a) any list or scoliosis
(b) shoulder levels
(c) level of the posterior superior spines
(d) gluteal crease levels
(e) atrophy of the buttocks
(f) prominence of one hip
(g) muscle spasticity—sacrospinalis, gluteal muscles, hamstrings
(h) note if the knee on the painful side is flexed

Lateral View—postural defects

Anterior View

(a) abdomen
(b) rotation of shoulders, pelvis, femora
(c) position of the anterior superior spines
(d) pronation of the feet

Leg Measurements

(a) actual length—anterior superior spine to the internal malleolus
(b) apparent length—umbilicus to the internal malleolus
(c) circumference of the thigh and calf at specified levels

PALPATION

Consistently localized tenderness is of greatest importance in examination and in determination of the type of lesion. Note also any tumour masses or muscle spasm.

ACTIVE MOVEMENT

Note any pain, muscle spasm or limited motion while:

(1) standing (forward flexion of the spine; hyperextension; lateral bending, left and right; rotary movement)

In lumbo-sacral conditions, rigidity limits forward flexion, and all movement in this direction is at the hip joint.

In sacro-iliac conditions, the lumbo-sacral joint is quite flexible, and forward flexion is free until the spasmodic hamstrings are taut at which time the knee bends on the affected side. On hyperextension, bending takes place at the knees in lumbo-sacral conditions, whereas hyperextension is free in sacro-iliac conditions. Lateral flexion is generally better away from the painful side in lumbo-sacral conditions.

In acute inflammations of the sacro-iliac joint, motion is generally more limited toward the side affected, whereas in sacro-iliac strain, the opposite is true.

(2) sitting

In sacro-iliac conditions, forward flexion is not limited while sitting, as the hamstrings do not become taut.

In lumbo-sacral conditions, forward flexion is limited both on standing and sitting. Note any list or muscle spasm not previously seen as the patient sits down.

(3) supine (straight leg raising)

This tightens the hamstrings, tilts the pelvis, strains the sacro-iliac joint, flat-

tens the lumbar spine and puts tension on the posterior ligaments, muscles and aponeurosis. This movement is frequently limited with low back pain to 30 or 40 degrees.

PASSIVE MOVEMENTS—with the patient supine

1. Laguère's sign—forcing the leg in flexion, abduction and external rotation elicits pain in the sacro-iliac joint on that side.
2. Gaenslen's sign—hyperextension of the hip elicits pain in the sacro-iliac joint with the opposite thigh and knee immobilized by flexion.
3. Ober's abduction test—patient on his side with the lower leg and knee flexed. The uppermost extremity with the knee flexed is extended and abducted at the hip joint. With the knee flexed, the thigh is allowed to adduct. If the fascia is taut, adduction is limited and the fascia stands out as a definite band.
4. Compression of the iliac crests and pressure over the pelvis.

In the physical examination thus far, the most important features to have noted are:

tenderness
deformity
muscle spasm
restriction of movement

NEUROLOGICAL EXAMINATION

A knee and ankle reflex should always be done. (50 per cent of cases with ruptured nucleus pulposus have an absent ankle reflex.) If there is any sciatic pain, do a more complete assessment and test for any sensory loss or paraesthesia, urinary or faecal incontinence and motor loss in the limbs. If any of these changes are found, do a lumbar puncture and examine the C.S.F. for an increase in protein (obstruction to free flow of C.S.F. upward to the arachnoid granulations.)

LABORATORY — Hb., W.B.C., R.B.C., smear; sed. rate; Wasserman; urinalysis.

These procedures should be carried out in order to rule out many related conditions which might have been missed on physical examination.

X-RAY

Always take an X-ray to include lumbar 3, 4, 5 and sacral 1, 2, 3 segments. Take 4 views, antero-posterior, lateral, 2 obliques, and if possible, a stereoscopic series.

If lumbar puncture was indicated and the protein was greater than 40 mgm./100 c.c., air or Lipiodol can be injected into the lumbar part of the subarachnoid space in an effort to visualize a filling defect by X-ray.

TREATMENT

Wearing of high heels tends to increase the forward lumbar curvature and thereby throw a patient off her balance. Lowering the heels in females is an absolute necessity.

The following is a resume of Harmsley's treatment:

1. In an ACUTE case of back strain with a definite history of twisting, falling or lifting, the most important part of the treatment is rest. Strapping or binding across the pelvic and lumbar regions for splinting is useful. The bed should be firm or use a "fracture bed" with boards underneath a firm hair mattress. Heat and massage may help.

2. RECURRENT ACUTE BACKSTRAIN. Use a well-fitted corset or belt and radiant heat lamp treatments at home. This often must be continued for several months. After the pain has subsided, use exercises to rehabilitate the muscles which have become atrophied during

the period of fixation. These exercises are designed especially to develop the erector spinal muscles and the gluteal muscles. An excellent combination of such exercises is swimming. If these recurrent attacks are severe, frequently only temporary relief can be offered.

3. More severe or chronic. Rest in bed with a fracture board and a firm mattress. Traction is put on each leg of 6-8 pounds, and also some support is added under the lumbar part of the spinal column. Heat and massage are alternated daily with diathermy until it is determined which type of treatment gives the patient the most relief. The patient is given sedatives for pain. This program usually causes more pain for the first 2-3 days. Any response should be evident by the fourth day, and then treatment should be continued for another 10 days to 2 weeks followed by a gradual resumption of activity. Then a well-fitting corset is applied and rest, heat, and massage are continued at home. If relief comes with this treatment, but is followed by an immediate recurrence of pain on resumption of walking, more radical treatment must be considered.

Where the acute low back pain persists or recurs, Watson-Jones uses immobilization in a plaster jacket applied with slight head traction. He finds it especially useful in simple traumatic arthritis cases and removes the cast when the patient has been free from pain for one month. If an acute attack recurs, he does a neurological to exclude a disk. Then he uses a celluloid jacket for months or even years. In some cases this treatment is used in disks as well.

Many other treatments have been tried with benefit. Many patients have received relief from symptoms by manipulation and special post-manipulative therapy when all other conservative methods have failed. Jostes and Roche claim that manipulations are of benefit in the following:

(1) anatomical variations (sacralization impinging transverse processes)
(2) congenital anomalies
(3) poor posture (contraction of the Tensor Fascia Latae, marked lordosis)
(4) dislocations (congenital spondylolisthesis, apophyseal subluxation)
(5) fasciitis and myofascial syndromes
(6) acute or chronic sprains of traumatic origin.

In order to be at all successful, the therapy must anticipate the extent of the pathology. Gentle manipulation of back sprains may be used to correct any malalignment or subluxation that may have occurred incident with the tearing of stretching of ligaments or capsule. This helps to restore the normal relationship of the joint, and the torn soft tissues are more correctly approximated and the muscle spasm is allayed. Manipulations can be done with or without anaesthesia. Jostes and Roche feel that manipulation without anaesthesia is a safeguard and limits rough or unduly forceful movements. Others feel that the relaxation given by a general anaesthetic is essential for a good result.

Obviously, cases of fracture, neoplasm, tuberculosis, arthritis, bony rarefaction etc. must be ruled out prior to any manipulative procedure. Manipulating a patient with a disk is unwise as cases are recorded of paraplegia following such a procedure. Uncompensated cardiac cases always constitute a risk.

Post-manipulative treatment is as important as the manipulation itself. Acute cases are kept in hospital 2-3 days and then allowed home. Patients should be advised to cease all activity and to assume a period of bed rest. Continuous

physical activity and weight-bearing will not "wear out" the pain but will aggravate the lesion and the muscle spasm.

Chronic cases are kept in hospital for 10-14 days, during which time appropriate manipulative and general measures are carried out. On discharge, the patient wears a canvas belt or a high back corset.

In both acute and chronic cases, fracture boards should be used under a felt or firm hair mattress (never innerspring) and in the acute stages pillows may be put under the stomach to induce flexion and under the feet to relax the hamstrings, Infra red heat may be used at 30 inches, applied for 30 minutes, and repeated q.4.h. until acute tenderness subsides. Twice daily the patient should do alternate straight leg raising. While in bed, the patient should use a special orthopaedic bedpan. Patients with chronic backache can wear a canvas belt or a high back corset. The patient should be taught special methods for getting in and out of bed, rising from a sitting position, sitting, leaning over, driving a car, etc. He should avoid over-stuffed upholstered furniture and use instead solid hard chairs. These various suggestions should be followed in an effort to use the back muscles as little as possible and to supplement them by the use of the muscles of the extremities.

EXERCISE

Exercises are very important in the post-manipulative period in an effort to strengthen the weakened muscles and to re-establish muscle balance.

Straight leg raising

When this can be done to 90 degrees without discomfort, relief is usually complete. This should be done twice daily, ten times with each lower extremity, performed alternately. This is best done just after infra red therapy has been given to the lumbar and sacro-iliac regions.

Gluteal exercises

Unilateral relaxation and atrophy of the gulteal muscles usually follows immobilization or is secondary to a painful focus.

Posture corrective exercises

Manipulative measures are not a cure-all in cases of low back pain, but merely another adjunct to treatment. They are not always sufficient but must frequently be followed by other orthopaedic procedures *i.e.* postural defects not the immediate result of muscle spasm —pronated feet, rotated femora, relaxation of the lower abdominal wall, lordosis—are noted and corrected. The abdominal muscles are strengthened, the shortened sacrospinalis muscle is stretched, and an abnormal lordosis is eliminated.

Following failure of conservative regimen, the various corrective operative procedures must be considered.

ACKNOWLEDGEMENT

I wish to thank Dr. W. J. Gardiner for his invaluable aid in the preparation of this article.

REFERENCES

1. Manipulative therapy for back conditions. Frederick A. Jostes, Maurice B. Roche. Principles and Practice of Physical Therapy, Coulter, Vol. III, chapter 23.
2. Treatment by Manipulation. H. Jackson Burrows and W. D. Coltart.
3. Physical treatment. Mennell 5th ed., p. 306-320.
4. Med. Clinics of North America. Dr. Philip H. Kreuscher. Backache: Etiology, Diagnosis, and Non-surgical treatment. p. 1343-1353, March, 1935.
5. Med. Clinics of North America. The Diagnosis and treatment of low back disability. Ralph K. G. Hermsley. p. 893-907, May, 1937.
6. Watson-Jones. Fractures. Ed. 2, p. 246-262.

INVESTIGATION OF A NEUROSURGICAL PATIENT

B. S. WELLS, M.D.

EVERY STUDENT during his final year spends one week on the neurosurgical service, and almost every one of them is bewildered by this very specialized field of surgery. It is felt that a knowledge of the common procedures used in the solving of a neurosurgical problem might lessen this bewilderment, and allow the student to derive more benefit from his brief exposure to this interesting group of patients. These procedures are not numerous and each will be described briefly.

X-RAYS OF THE SKULL

P-A and lateral stereoscopic views, and an oblique A-P view to show the occiput are taken routinely in cases of head injury, or suspected intracranial lesion. Examples of valuable findings are depressed fractures (requiring operation); linear fractures over the middle meningeal groove (extradural haematoma), or into a sinus (necessity for antibiotic therapy); shift of a calcified pineal gland from the midline (indicating a space-occupying lesion on the opposite side); calcification in an intracerebral tumour; enlargement of the pituitary fossa (pituitary tumours); erosion or invasion of bone by tumour (*e.g.* meningioma); congenital anomalies (*e.g.* platybasia). Special views of the internal acoustic foramina are taken in cases of suspected acoustic neuroma, which erodes the margins of this bony orifice.

X-RAYS OF THE SPINE

A-P stereo and lateral views are taken. In patients with spinal injury, they may show a simple compression fracture of a vertebral body, or a fracture dislocation with its danger of spinal cord damage. A thin disc space and local arthritic "lipping" may be present in patients suffering from herniated intervertebral disc, especially if the lesion is in the cervical region. An enlarged intervertebral foramen may indicate a "dumb bell" neurofibroma. Congenital anomalies are also revealed (*e.g.* cervical rib, enlarged foramen magnum of Arnold-Chiari malformation). Primary or secondary tumours in the spine may be the cause of the patient's symptoms and signs.

X-RAY OF THE CHEST

Since it is well known that neoplastic or suppurative lesions in the lungs frequently produce secondary lesions (tumour or abscess) in the brain, A-P and lateral views of the chest are important in patients suspected of having an intracranial space-occupying lesion. A lateral view sometimes shows a lesion which is hidden behind the heart in the A-P view.

PNEUMO-ENCEPHALOGRAM

These are special X-rays taken of the skull after the ventricles of the brain have been filled with air (or oxygen). The ventricles can then be seen showing as dark shadows on the X-ray film, and by taking multiple views, with the patient's head in varying positions, a space-occupying lesion in the brain can usually be localized. Such a lesion may produce a local deformity or filling de-

fect in one of the ventricles, or if larger it may press on and distort a whole ventricle, or it may block some part of the ventricular system (*e.g.* foramen of Monro, cerebral aqueduct) producing dilatation of the system behind the block. In addition to localizing a lesion so that the surgical approach to it can be planned, such films are helpful in deciding whether a tumour has extended so far that it is inoperable.

The air is introduced into the ventricles in one of three ways.

(1) Lumbar Route

The patient is supported in a sitting position, and given pentothal anaesthesia, since introduction of air into the cerebral subarachnoid space is painful. A lumbar puncture is done, and a 20 c.c. syringe filled with air is attached to the needle. Then the cerebro-spinal fluid is exchanged for air, 5 c.c. at a time, until 80-100 c.c of air have been injected. This air bubbles upwards in the subarachnoid space, and some of it enters and fills the ventricular system through the foramina of Magendie and Lushka. The remainder of the air flows up around the cerebral hemispheres, outlining the sulci.

(2) Cisternal Route

In this procedure the needle is passed between the atlas and the base of the skull into the cisterna magna. Since most of the cerebro-spinal fluid is below the level of the needle, much less fluid needs to be withdrawn than when using the lumbar route, and 30 c.c. usually suffices. The exchange of fluid for air is made slowly, 2 c.c. at a time, so that the air will pass up into the ventricular system rather than up into the cerebral subarachnoid space. For this reason the procedure may be carried out under local anaesthesia, since air in the ventricles does not cause pain.

(3) Ventriculogram

In this procedure, a burr hole is made in the skull in each parietal area, using only local anaesthesia for the short scalp incisions. The dura at each opening is incised, and a blunt brain needle is passed into each lateral ventricle. The fluid is then drained from each ventricle, and air injected. The needles are removed, and the scalp incisions sutured. **N.B.** If a patient shows signs of increased intracranial pressure (*e.g.* papilloedema), a lumbar or cisternal air encephalogram must not be done, since introduction of a needle into the spinal subarachnoid space under such circumstances may precipitate herniation of the cerebellar tonsils down into the foramen magnum, with resulting compression of the medulla, and death.

ARTERIOGRAM

This procedure is most valuable in demonstrating intracranial aneurysms, which can sometimes be treated surgically, but is also useful in showing the location of tumours. Vascular meningiomas often show on the X-ray films filled with the radio-opaque dye, and other tumours may distort the normal pattern of the cerebral vessels, thus indicating their position.

In this procedure, the patient is given pentothal anaesthesia while lying on the X-ray table, and a long needle is introduced through the skin of the neck a few cms. above the clavicle in the line of the common carotid artery. It is then directed upward to enter the internal carotid artery just at its origin; this artery is easily palpated with the free hand, while the other hand guides the needle. Then 15 c.c of a 30 per cent solution

of Diodrast (a radio-opaque dye) is injected as rapidly as possible, and X-rays are taken at intervals of a few seconds during the injection. Three injections are made, giving A-P stereoscopic films and plain lateral films. The X-rays show the internal carotid and its anterior and middle cerebral branches.

MYELOGRAMS

This procedure consists of injecting 6 c.c. of an oily radio-opaque dye (Pantopaque) into the lumbar subarachnoid space. This is done with the patient lying face down on the X-ray table, under local anaesthesia. Then the table is tilted head down and then head up, so that the column of oil runs up and down in the dural sac, like the bubble in a spirit-level. It is observed under the fluoroscopic screen, and any obstruction to the flow of oil, or indenting of the oil column, can be seen. In this way, such lesions as cord tumours lying within the sac, or herniated intervertebral discs compressing the sac from without, can be demonstrated.

ELECTRO-ENCEPHALOGRAM

By placing electrodes at various points on the scalp, in various combinations, the electric impulses from the brain (brain-waves) may be traced on a moving strip of paper. Abnormal tracings are produced in all types of brain lesions, but are useful to the neurosurgeon chiefly in assisting in the demonstration and localization of brain tumours.

LUMBAR PUNCTURE

As explained previously, this should never be done in the presence of intracranial pressure. It is a useful procedure in demonstrating haemorrhage from a ruptured berry aneurysm or following a head injury, and in showing the presence of a block in the spinal subarachnoid space with such conditions as cord tumour or fracture-dislocation of the spine (Queckenstedt test). Examination of the cerebro-spinal fluid removed by lumbar puncture is often helpful (*e.g.* increased protein with cord tumour).

BURR HOLES

In patients suspected of having extradural or subdural haematoma, the investigation is simple. A burr hole is made in each temporal region, disclosing either an extradural or a subdural collection of blood clot.

SPECIAL TESTS

Plotting of the visual fields may reveal defects not found on confrontation testing. Audiograms and caloric tests are useful in investigation of patients suspected of having acoustic neuroma (which produces deafness and loss of vestibular function), or Menière's disease (decrease of hearing and hyperactive vestibular function).

SOURCES OF TUMOUR TISSUE FOR RESEARCH

M. I. ARMSTRONG, M.D.
A. E. GRAY, B.Sc., M.D.
A. W. HAM, M.B.

THE FIRST REQUISITE of the cancer research worker is cancer tissue, and for many kinds of investigations, a reasonably steady and substantial supply of it is required. This fact is one important reason for so much fundamental cancer research being performed with malignant tumours of experimental animals. Two advances made in the last few decades have made it possible to obtain primary tumours fairly readily from this source: (1) the rearing of pure strains of animals in which a high percentage of spontaneous tumours of certain organs occur, and (2) the discovery that certain chemical compounds exert potent carcinogenic effects and may be administered to animals so as to produce, at least in some species, cancers at will.

TUMOUR TRANSPLANTATION

A more constant supply of tumour tissue than can be procured by the methods outlined above can be obtained by transplanting a given tumour to other animals of the same species. In this connection it is to be appreciated that although tumour tissue, like normal tissue, can be transplanted successfully from one site to another in the same animal (autografting), unless certain genetic requirements are met, neither normal nor tumour tissue can be successfully transplanted from one animal to others of the same species (homografting). As an aid to tumour research, however, pure strains of animals have been developed by inbreeding, by means of brother-to-sister matings, for many generations. The genetic constitutions of animals of strains developed this way are sufficiently identical for tumour tissue to be grafted successfully from one animal to another. The progeny of a cross between the pure strain and animals of the same species (but of an unrelated strain) will also be sufficiently similar genetically to support a high incidence of successful transplantations of tumour tissue obtained from the pure strain. The genetics of tumour transplantation is believed to rest on a Mendelian basis and different tumours have numerically different gene requirements for growth in a given host. Sometimes when tumours are serially transferred in animals a sudden decrease in their genetic requirements occurs; such tumours thereafter may be transferred with a greater percentage of "takes" in a colony, for example of rats, which are of the same variety but which do not represent a carefully inbred strain.

The successful grafting of tumour tissue from animals of one species to those of another (heterografting) is not usually possible. There are, however, two important exceptions to this rule. First, some tumours of rats and mice, and possibly of other species as well, will grow in the yolk sac or on the chorioallantois

The investigation regarding the growth of rat liver tumours in fertile eggs performed by the authors and described in this paper was supported by grants from the National Cancer Institute of Canada, the Ontario Cancer Research Foundation and the Foster Bequest Fund of the University of Toronto.

Departments of Anatomy and Physics.

of chick embryos because the chick embryo does not develop species immunity until close to hatching time. Secondly, certain human and animal tumours have been grown in the anterior chamber of the eye of a heterologous host. The eye of the guinea pig is most commonly used for this purpose (5). However it may take up to six months or even longer for a tumour to begin to grow in this medium and there is such a limited space in the anterior chamber for its growth that this method does not provide very large supplies of tumour tissue. Accordingly it is used chiefly for studying the characteristics of individual tumours.

When it was found that benign tumours would not grow in the anterior chamber of the eye, whereas many malignant tumours grew well, it was thought that eye transplantations could be used as a test of malignancy in cases where the pathological diagnosis was doubtful. Although successful "takes" indicate malignancy the failure of the tumour to grow does not necessarily indicate that it is not malignant. Recent work of Greene suggests that growth of a human tumour in the guinea pig eye is an indication of what he terms its metastasizability (4).

PROBLEMS OF CONTROL TISSUE

Regardless of how tumour tissue is obtained, it is important for many kinds of cancer research, to be able to obtain suitable supplies of non-malignant tissue of the same kind as that of the tumours for purposes of comparison. This may seem to be a minor problem but it is not so simply solved as might be imagined. The cells of the normal organ from which a tumour arose may be present in the organ in small numbers and intimately surrounded by other cell types. In order to appreciate another difficulty in obtaining proper control tissue it is necessary to realize that some of the properties believed in the past to be peculiar to malignant cells have been proven afterward to be only those of rapidly growing relatively undifferentiated non-malignant cells. Hence, in order to be sure that any property discovered in malignant cells is to be attributed to malignancy it is necessary to prove that it is not to be observed in embryonic or regenerating cells of the same type. This requires that the cancer investigator work with a kind of tumour that permits him, for purposes of comparison, to obtain reasonably substantial amounts of embryonic and regenerating cells of the same kind as those in the tumour. This requirement is easily met if the organ chosen is liver. Embryonic liver, unlike for example embryonic mammary gland, is easily obtained. Regenerating liver can also be obtained by the simple expedient of removing a large part of the liver at operation and then killing the animal about forty hours later. It has been shown that if 68 per cent of the liver is removed from a young rat the organ is restored to 75 per cent of its original mass in three days (2).

Liver tumours, moreover, may be induced fairly easily in rats by feeding the animals a synthetic diet containing the carcinogen, p-dimethylaminoazobenzene. This substance, called butter yellow because of its colour, causes a rat to develop a liver tumour in from six to eight months. Unfortunately, in addition to producing tumours, the diets containing butter yellow injure the livers in many ways so that the livers, in addition to demonstrating tumours, may contain areas of fatty degeneration, large amounts of fibrous tissue, cysts, pro-

liferated bile ducts, hyperplastic nodules of regenerating parenchyma, and areas of necrosis. Hence, if it is desired to assay a piece of liver tumour tissue by biochemical methods there is no assurance that any given piece removed from a nodule represents fairly pure malignant liver tissue.

It is obvious that a chemist who wishes to find out the composition of a chemical compound must first isolate that compound in a pure state. It is also obvious that a bacteriologist can only efficiently study the characteristics of a certain strain of bacteria if the strain can be grown in pure culture. Similarly the cancer research worker can only study malignant cells to best advantage if he can obtain them in a reasonably pure form. So far as liver tumours are concerned those induced by butter yellow contain so many other tissue ingredients in addition to malignant cells that they are far removed from being pure substances.

There is another serious disadvantage with regard to making studies on primary tumours that develop in the livers of rats fed butter yellow; it is difficult to be sure that the tumour nodule chosen for study represents a malignant tumour. Opie has discussed the requisites for deciding whether any given butter yellow induced rat liver tumour is malignant or not and considers that the presence of secondary growths is essential for the diagnosis of malignancy (6). Certainly, this condition is not satisfied with regard to a great many liver tumours that are obtained at autopsy in this type of experiment.

UTILIZING FERTILE EGGS

Both of the difficulties associated with liver tumours as they develop in the livers of rats fed butter yellow, that is, the admixture of other materials and the uncertainty about malignancy, can be largely overcome by cultivating these tumours in the yolk sacs of fertile eggs. In earlier studies in which mouse mammary tumours were cultivated in the yolk sacs of eggs, the necrosis was found to be almost neglible. Rat liver tumours growing in yolk sacs (3) show some necrosis but not nearly as much as do the primary tumours in the rats. Except for a little stroma and some blood vessels, both of which are provided by the chick, they constitute a fairly pure mass of malignant cells. Furthermore the following evidence supports the concept that the rat tumours that have acquired the ability to metastasize are most likely to grow in eggs. Of six rat liver tumours which demonstrated metastases in the rat, and which we transferred to eggs, three have been carried to date for 23, 37, and 49 serial transfers respectively and another, although lost accidently after several egg passages, gave every indication of growing well. In contrast to this, of twenty rat tumours which had not metastasized, only one grew well in eggs. The reader will recall, in this connection, that metastasizing human tumours have been shown to grow best in the anterior chamber of the eye.

Once a tumour grows well in eggs it can usually be transferred serially with 99 per cent "takes" thereafter and hence relatively abundant supplies of tumour tissue can be obtained. The method by which we have successfully cultivated liver tumours in fertile eggs is essentially the method originally described by Taylor, Hungate, and Tayolr (7) for cultivating mouse mammary tumours in yolk sacs. By this method tumour tissue is injected into the yolk sacs of eggs that have been incubated for four or five days. The tumour cells become attached

to the advancing edge of the yolk sac, and deriving their stroma and blood supply from their host, grow so well that eight days later tumours having a volume of from 0.2 to 1.0 c.c. and with an average volume of about 0.4 c.c. may be harvested. Larger tumours may be obtained with longer incubation.

It was previously mentioned that tumours could be grown either in the yolk sac or on the chorioallantois of the chick embryo. When the allantoic sac of the chick embryo, which grows out from the gut of the chick as a little sac of fluid, fuses with the chorion, it is called the chorioallantois. By the seventh day of incubation the chorioallantois reaches the shell membrane against which it flattens out so that the vessels which are contained in its wall are separated from the air only by the shell and shell membrane. Before the chick hatches these vessels are responsible for the oxygenation of its blood. Tumour may be deposited on the chorioallantois by the following method. After removing a piece of shell from over the air space a small piece of tumour is grasped with forceps and the forceps are gently pushed against the inner shell membrane. This splits the membrane so that when the forceps are opened the tumour is deposited on the chorioallantois. The tumour cells are then nourished by the chorioallantoic vessels. In our experience tumours grown this way tend to be invaded by a great deal of fibrous tissue and often contain large areas of necrosis so that they are not as satisfactory as tumours grown in the yolk sac.

Advantages of Yolk Sac Culture Outweigh Disadvantages

A single tumour, recovered from a yolk sac, provides enough tissue to permit many eggs to be inoculated. Since fertile eggs are much cheaper than rats or mice, and since appropriate tumours grow so quickly and surely in eggs, the cultivation of tumours in yolk sacs has the added advantage of being less costly and more convenient than transplanting tumours in animals. There are certain disadvantages in the method: (1) rigid asespis must be maintained in the injection technique; (2) up to 25 per cent of inoculated eggs die in the early days of incubation, probably as a result of the trauma occasioned by the injection procedure (1); (3) on serial transfer tumours may develop enhanced lethal qualities and kill the chick embryos before the tumours are harvested. But since the method provides such relatively pure tumour tissue of guaranteed malignancy and of a type of tissue for which it is so easy to obtain embryonic and regenerating cells for control studies, the advantages, in our opinion, for outweigh the disadvantages and we think that the method could be widely used with benefit particularly by those who are making biochemical studies of malignant tissue.

BIBLIOGRAPHY

1. Armstrong, M., and Ham, A.: Effects, Particularly Anemia, Produced in Chicks by Growth in their Yolk Sacs of Mouse Mammary Tumours. Cancer Research, **7**:481, 1947.
2. Bucher, N. L. R., and Glenos, A. D.: The Effect of Age on Regeneration of Rat Livers. Cancer Research, **10**:324, 1950.
3. Gray, A. E., Armstrong, M. I., and Ham, A. W.: Cultivation of p-Dimethylamoazobenzene-Induced Rat Liver Tumours in Fertile Eggs. Cancer Research, **10**:221, 1950.
4. Greene, H. E. N.: The Heterologous Transplantation of Human Melanomas. Yale J. Biol. & Med., **22**:611, 1950.
5. Greene, H. S. N.: The Heterologous Transplantation of Mammalian Tumours. J. Exp. Med., **73**:461, 1941.
6. Opie, E. L.: The Pathogenesis of Tumors of the Liver Produced by Butter Yellow. J. Exp. Med., **80**:231, 1944.
7. Taylor, A., Hungate, R. F., and Taylor, D. R.: Yolk Sac Cultivation of Tumors. Cancer Research, **3**:537, 1943.

FEATURE

ALEXANDER McPHEDRAN - An Appreciation

D. K. FOERSTER, B.A., 5T1

When one looks back into the history of a prominent medical school one finds many influential and stimulating minds and personalities. Our school owes its fame to many men—devoted teachers and brilliant scholars, astute clinicians and pioneering scientists. Probably the strongest and finest influence of all was Alexander McPhedran, a teacher of medicine for 35 years and Professor of Medicine for 16 years. Were you to ask any of our older clinicians if they knew Alexander McPhedran the reply would likely be: "He was the best teacher I ever knew and I have known many." A devoted former student of McPhedran, Dr. H. J. Hutchison, wrote fittingly:

A vision, and its achievement
Through daunting jealous years,
Then the burden of moulding others
To the pattern of pioneers.

An influence, and its measure
Not to be gauged in the prime,
Like mother-love enduring
Throughout its children's time.

Alexander McPhedran was born in 1847 on a farm in Halton County, Ontario, to hardy Scottish immigrants from Argyllshire. As a lad his ambition was to be a teacher and, during his course at the Provincial Normal School in Toronto, he so impressed the faculty with his scholarship and tenacity of purpose that he was invited to remain on the staff after graduation. Yet his active mind and desire for service to mankind sought more than this—he wanted to teach and practise medicine. Accordingly he enrolled in the old Toronto Medical School in 1870 and proceeded to teach in the Normal School and study medicine concurrently—a heavy undertaking indeed, yet he graduated in 1875 at the head of his class and earned the gold medal for achievement. The Medical School then was not a University faculty but was a proprietary school located on Parliament Street near the old Toronto General Hospital which was on Gerrard Street East.

After graduation he undertook the general practice of medicine in an office on Whitton Avenue (now part of Dundas Street East) near Yonge. His insight and thoroughness soon established him as a young physician of great promise and brought him a large practice. When, in 1885, the Medical School was reaffiliated with the University (they had been separated in 1859 as the University desired to teach pure Arts and Sciences only and be free of professional influences) Alexander McPhedran was appointed Demonstrator in Medicine under Professor Henry Wright. McPhedran was a singularly successful teacher. He employed the Socratic method to the great advantage of his students. By question and answer, demonstration and close supervision, praise and

caustic criticism, he stimulated the students to think for themselves and to find for themselves. He had a remarkable clarity of thought and delivery and was a most astute judge of men. His clinics were not a time for foot-shuffling or window-gazing; a student kept mentally alert or was cursorily brought to task for vagueness or indecision. His clinics were much sought after yet he had no interest in making himself popular. He ever encouraged and assisted diligent students and was revered by them. However, for those students who refused to apply themselves, he was merciless in his criticism. Seldom has a teacher been so admired by some yet so unpopular with others. However, all appreciated the value of his teaching and recognized this as the major influence in their medical education.

As Dr. William Goldie, Meds 9T6, remarked: "He trained students at the bedside to observe and to analyze the course of disease as observed and as told by the patient. He was impatient of bluff, neglect, and vagueness; he was intent on making students work—often to their great discomfort. Yet his piercing eye would become kindly and his voice softened once the mind finally worked and interest became apparent." He was ever fearful lest the bedside be neglected, and apparatus and test be raised from their proper place of confirming diagnosis to displace the trained eye and mind. His lessons were driven home so clearly and logically that they were never forgotten. He emphasized fundamentals and taught slowly and painstakingly, never attempting to cover more than the student mind could readily grasp and follow.

He was brought up in the old Scottish tradition which insisted that it was almost a crime to display emotion. He was kindly and understanding but shy and aloof, dour and reticent like the typical Scot, and was tenacious of an opinion though these were always well grounded. The teaching and elucidation of medicine and the moulding of students' minds were the purposes of life for him. He had few other interests and taught to his own financial disadvantage—though the students received fully half of his working day, he was, as were the other teachers, paid but a pittance for his labours (just as Hippocrates would have it). He had no other degree than M.B. and indeed had no interest in titles and degrees created by men. He went to England several times but was always too busy studying to bother with their courses and degrees. He would not follow the set course leading to M.R.C.P.; he was a brilliant scholar, having little need of guidance but studied where and what he thought of value. He was ever ready to discuss findings and opinions and did so with many of England's great clinicians but, realizing just what he wanted and did not want, made the best possible use of time and facilities.

In 1903 the Medical School was moved to the University campus and was united with the Faculty of Medicine of Trinity College. On the death of Professor J. E. Graham in 1903 Alexander McPhedran was appointed Professor of Medicine in the united schools. Professor J. E. Fotheringham of Trinity became Professor of Clinical Medicine. Proud ex-Trinity students were not content to see their instructors take second place to University of Toronto teachers and they manifested their discontent whenever possible. These men took delight in hissing, clapping hands, and stamping feet whenever a University of Toronto lecturer attempted to

deliver knowledge. They started this routine during McPhedran's first lecture. The Professor promptly gathered his papers, turned on his heels, and marched in dignity out of the lecture room. Lectures in medicine were not given for some three weeks until a letter of apology, signed by the entire class, was submitted. During the three week armistice one ex-Trinity student, later a prominent physician, feeling most conciliatory after an evening in the "pub" then beloved by medsmen, elected to phone the Professor and bring about a lasting peace. He told the Professor in a rather condescending tone: "I just phoned up to say that we have decided to accept your apology." Needless to say this physician must still squirm on recollecting the matter.

McPhedran's reputation as a skilled physician spread far beyond Toronto and Canada; and he became known as one of the great clinicians of his day. As a member and later president of the Association of American Physicians he formed many friendships and was greatly admired by his American colleagues. He did more to spread the excellent reputation of medicine in Toronto than any clinician in our history. He was elected a Fellow of the Royal Society of Canada—a rare distinction for a practising physician. He was president of the Canadian Medical Association in 1908.

The story is told of a wealthy Toronto industrialist who had an obscure abdominal disorder. McPhedran was called into consultation as was the famed William Osler who happened to visit this city at that time. The two eminent physicians heard the history and physical findings. Osler examined the patient carefully, then retired in puzzled dignity. Canny "old Sandy" inspected the abdomen, then seized the lower limbs and flexed them quickly onto the abdomen. This maneuver relaxed the abdominal wall and a tumor appeared from under the costal margin.

The Professor was ever constructively critical and accepted no man's word without substantial proof. Once a woman student gave a novel answer to one of his questions. His response was, "Where'd ye get that?" "From Osler's textbook," was the reply. "Where did Osler get it?" he pursued unimpressed.

Dr. Harris McPhedran recalls vividly a clinic held in St. Michael's Hospital. An elderly man who had had two cerebral haemorrhages was lying comatose and breathing stertorously. The Professor turned to his nephew, "What will happen to him?" The student was understandingly uncertain. "Exitus," the Professor replied succinctly, thereby displaying a grim but realistic sense of humour.

McPhedran contributed frequently to the few medical journals then in existence but did little formal writing apart from contributing a substantial section to Osler's system, *Modern Medicine*. He was primarily a teacher and excelled in physical examination and diagnosis. As Goldie recalled, "He was the great clinical teacher among a group of extraordinary teachers in the medical schools of Canada. These were men of character, their lives nicely balanced between idealism and practical life; materialism and commercialism played no part in their field of work. They insisted on acuteness of observation and recognition of facts; they encouraged a healthy imagination and stimulated sane concepts"—in a medicine that still had much of the mystical attached to it. He was one of the last and best of a type man now almost lost to medicine—men of sacrifice, service, and great resolution. Dr. Thomas

McCrae, Meds 9T5, Professor of Medicine in Jefferson Medical College, Philadelphia, recalled, "He was the best teacher of medicine for undergraduates with whom I ever came in contact. I doubt if in the early nineties medicine was better taught anywhere on the continent, and in this McGill and Toronto shared the honours equally. Certainly those of us who went elsewhere and had the chance to measure our training in medicine against that of men from other schools never needed to be ashamed of it." (This from a man much famed and travelled, who had been Osler's Resident at Johns Hopkins.)

The brilliant Lewellys Barker, Meds 9T0, who succeeded William Osler as Professor of Medicine in John Hopkins University, then the outstanding medical centre in America, had this to say of his old teacher: "His teaching was of outstanding excellence for these reasons: he brought his students into direct personal contact with the objects studied; his students were taught to use their own powers of observation; he insisted that each student should think for himself; in all his clinical work the welfare of the patient was the paramount interest; and in addition to stimulating the intellect of his students he did much, especially by his example, to educate their emotions and their wills."

The work of his department was his main objective and his tireless energy and marvellous organizing ability brought that department to a high state of excellence. The good students greatly admired him and often emulated him to a striking degree. Although most of his students have passed along, a second generation taught by them carry on the methods so soundly established by Alexander McPhedran. In retrospect one realizes that our clinical teaching today owes the basis of its form to this man.

Although of a conservative nature he was sensibly progressive in action and was quick to sense advantage in new ideas. Thus he was one of the first to own an electric automobile; was one of the first to recognize that "inflammation of the bowels" was due to a perforated caecal appendix and was one of the first to remove an appendix; is said to have been the first to describe "Riedel's" lobe of the liver and sense its place in physical examination; was one of the first to use diphtheria antitoxin and used it first on one of his sons; was one of the first to establish himself as a specialist or consultant in Internal Medicine. He was highly regarded internationally as a diagnostician and had many cases referred to him from near and from afar. He practised most of his professional life in offices at 151 Bloor Street West.

The Professor retired from the chair of Medicine in 1919 at the age of 72 years. On this occasion a banquet was held in his honour and many former students came from near and far to acknowledge their esteem and gratitude. The main address was read by Professor Lewellys F. Barker of Johns Hopkins and was a fitting tribute to the old master. The sincere and eloquent words of his world-famous student with the added cheers of the admiring assemblage must have touched the old man deeply and made him realize that his many years of devoted service to his medical school had indeed been well spent.

Professor Emeritus McPhedran died in 1935 at the age of 88, and with him passed a half century of medical progress and a type of man the like of which the world will not see again. Gone are the selfless devoted teachers and the indefatigable researchers; gone are the great individualists—men of pioneering

spirit and tireless devotion whose greatest satisfaction was to see their pupils carry on the torches of investigation and of service to mankind.

We students have much to learn from the life and teachings of Alexander McPhedran. In this day of large classes, insufficient funds, and over-worked teachers we no longer have close and continued personal contact with our instructors. They have little time to teach and guide us individually—we must follow McPhedran's lead and be scholars unto ourselves; we must observe tirelessly and analyze critically; we must learn to teach ourselves as he taught himself; we must have a selfless goal in mind as he had—to further the advance of clinical medicine and assist those coming behind us. His life and teaching were inspiring to his students and should be to all those fortunate enough to study in this medical centre which he, more than any other, made into a great teaching and treatment centre.

ACKNOWLEDGEMENTS

I wish to thank Dr. M. H. V. Cameron and Dr. Harris McPhedran for reminiscences.

EXCHANGE JOURNALS FROM VARIOUS COLLEGES AND PUBLISHING HOUSES IN CANADA, THE UNITED STATES OF AMERICA AND MANY COUNTRIES ABROAD ARE AVAILABLE ON A SPECIAL SHELF IN THE MEDICAL READING ROOM OF THE UNIVERSITY OF TORONTO LIBRARY.

THE DOCTOR IN ENGLISH LITERATURE

J. E. ANDERSON, 5T3

"No man ever attained supreme knowledge unless his heart had been torn up by the roots."

I

A SMALL WORN COPY of a book written by a seventeenth century physician was the constant companion of Sir William Osler during life, and as his body lay in Oxford University Chapel, this volume rested upon the casket. The book, Sir Thomas Browne's *Religio Medici,* was written in an attempt to express in words the soul of a doctor. Since Browne, many men of medicine have tried to communicate to others their beliefs, emotions, and ideals through the medium of literature. The problems that Thomas Browne pondered and the thoughts that fill the writings of those who followed him in the English literary tradition are the same as those all medical men have faced even unto the present day. The purpose of this article is to see how certain of these authors have illustrated the development of the physician's personal *Religio Medici.* Of those chosen, Francis Thompson had medical experience only as a student; Keats, Bridges, Crabbe, and Goldsmith exchanged medicine for literary careers at various times after their qualification; while Browne, Vaughan, Aikenside, and Schweitzer continued in practice throughout their lifetime.

Mitchell Banks has said, "Medicine stands foremost among the professions in the numbers of men distinguished in literature who at least began life in its ranks." The reason for such a large number of physician-authors is evident when it is realized that both medicine and literature embrace life in all its aspects as their subject matter. Hardly any state of soul escapes the physician's observation in his role as healer, counsellor, and friend of his patients. Before his eyes unfolds the pageantry of birth, life, suffering, and death. If he is capable of appreciating its meaning and expressing it, his words will convey the most authentic record of humanity with all its triumphs and failures, its repugnance and beauty. Each man of medicine in his turn must undergo these experiences and through them establish for himself some coherent, level-headed attitude toward himself, his patients, and the important questions of life. This will be his *Religio Medici.* That it be a sane one is more important than clinical skill. Surprisingly enough, his value in the role of being "all things to all men" will be evaluated more on the manifestation of his soul than on the work of his hands.

II

This discussion will begin with a study of two author-physicians whose impact upon the world has been great in spite of their contrasting lives. John Keats died at the age of twenty-five with life hardly begun; Albert Schweitzer labours still at the age of seventy-six. The former chose to forsake medicine after he had qualified; the latter relinquished his post as principal of a college to begin the study of medicine.

The ridiculous romantic theories clinging to the memory of Keats have

persuaded this generation that he was a weak soul too sensitive for medical practice and one who pined away to an untimely death due to unfavourable criticism of his poetry. In reality, he practiced medicine competently in an age when both patient and doctor required stamina in large proportions. After his apprenticeship in surgery, as a dresser for one of the three chief surgeons, his duties included the changing of dressings many times daily because wounds became shockingly purulent and offensive very rapidly. Then too, the rotating duties as surgeon in the emergency service of the hospital was hardly a task for a sensitive person. Surgery was performed publicly in a theatre whose capacity was gravely strained by the two hundred and sixty students shouting, joking, and fighting for the most advantageous seats. The operation was performed without the benefit of anaesthetic, the technique was usually crude, and the benefit to the undertaker cannot be overestimated.

A copy of the notebook Keats used in Anatomy and Physiology has been preserved and deserves a few quotations here, if only to stimulate its entire reading.

"Memory should not be called Knowledge."[1]

"If they cannot ascertain a disease, they call it nervous."

"The Young who lead a life of Intemperance are subject to ossification. (of the cerebral vessels) Those who have been much addicted to Study from Keeping up a continued determination of Blood to the Brain have often the Vessels of that part ossified."

Keats' passionate concentration on poetry for the short period of remaining life can be explained in his reasonable expectation of an early death. "I am ambitious of doing the world some good; if I should be spared."

"When I have fears that I may cease to be
Before my pen has gleamed my teaming brain."

". . . . . mortality
Weighs heavily on me like unwilling sleep."

With the short life allotted to him, he knew that his greatest contribution to humanity would be through his poetry, therefore he frantically compressed a lifetime of inspiration into less than five years.

"What though I leave this dull and earthly mould,
Yet shall my spirit lofty converse hold
With after times."

The patriot is stirred to great deeds, legislature is inspired to reforms, the sage mingles the poetic outpourings with moral themes, and all humanity is delighted by the songs of love, merrymaking, and peace. So Keats did write for a few short years poetry which was great yet unobtrusive. He aimed at a level of poetry which "enters one's soul and does not startle it or amaze it with itself, but with its subject. How beautiful are the retiring flowers! How would they lose their beauty were they to throng into the highway crying out 'Admire me, I am a violet!' "

He spoke frequently of perhaps returning to medicine, but he remained in the realm of poetry until tuberculosis ended his life. That an obscure interne of the last century has so moved the thought of the world justifies the choice Keats made when he laid down his instruments for the last time, but it is improbable that he could have spoken so effectively to all men had he not seen them once through the eyes of medicine.

[1]Robert Southey became a writer after failing his examination in Anatomy.

Albert Schweitzer, authority in the three fields of Philosophy, Theology, and Music found himself unable to reconcile the joyful consciousness of his own happiness, talents, and success with the pity he felt for the suffering of the world. The basis for his ethical philosophy has been termed "Reverence for Life." In his *Memoirs of Childhood and Youth* he states, "As far back as I can remember, the thought of all the misery in the world has been a constant source of pain and grief to me." As a child, he composed a prayer which grew to embody the totality of his life:

"Dear God,
Protect and bless all creatures that have breath,
Save them from all evil,
And let them sleep in peace and quietness."

And so at the age of thirty, Schweitzer entered medical school in order that he might be trained to help "the fellowship of those who bear the mark of pain." Since 1913, his work has been at Lambaréné in Equatorial Africa among those who needed help most but from whom he could not expect gratitude, comfort, or personal gain. He has had health and long life in order that he might, like Keats, make men less shallow and morally better by making them think.[2] But as well as this, he has physically attempted to raise the burden of pain which lies heavily upon the world. It is the familiar story of losing one's life in order to save it.

Schweitzer's unselfish work for humanity's sake is illustrated more familiarly in the life of Henry Vaughan, a seventeenth century country doctor who sought only the simple rewards of a worthy physician, and who had no idea of his eventual poetic fame. During his lifetime of carrying "physic and piety" to his patients, he grew to love the lonely rural countryside through which he rode and walked. This close contact with nature takes form in his poetry and unites him again with Schweitzer who sees in all creation a brotherhood: "We are all in this together."

III

In his poetry, Francis Thompson, who studied medicine during the Victorian period, mourned the age old tedium of the cycle of life.

"Eve no gentlier lays her cooling cheek
On the burning brow of the sick earth,
Sick with death and sick with birth."

and again

"The fairest things in life are Death and Birth,
And of these two the fairer thing is Death."[3]

This preoccupation with death is to be expected among those who watch the flame of life flicker itself out and then see the shell of the individual lying cold upon the porcelain of an autopsy table. Browne assures us "Not that I am insensible of the dread and horror (of death) by raking in the bowels of the deceased, continual sight of Anatomies, Skeletons, or Cadaverous reliques." He confesses that once he thought that the souls of men perished with their bodies. Many men of medicine live in this same materialistic bias which has been enunciated in modern times by Aldous Huxley:

"The greatest tragedy of spirit is that sooner or later it succumbs to the flesh. Sooner or later every soul is

[2]The volumes of his writings number over forty.

[3]Alternative reading for those of cheerful disposition: "And as they passed up the slope, still discoursing on life and death, they heard the soft laughter of young men and maidens among the trees, as it always has been, as it always will be."

stifled by the sick body; sooner or later there are no more thoughts, but only pain and vomiting and stupor. The spirit has no significance; there is only the body. When it is young, the body is beautiful and strong. It grows old, its joints creak, it becomes dry and smelly; it breaks down, the life goes out of it and it rots away. Death. You can't get over the fact that, at the end of everything, the flesh gets hold of the spirit and squeezes the life out of it, so that a man turns into something that's no better than a whining sick animal. And as the flesh sickens, the spirit sickens, manifestly. Finally the flesh dies and putrifies; and the spirit presumably putrifies too."

The physician's common reaction to Browne's "Cadaverous reliques" is one of business-like apathy, whether real or feigned. Still, behind our actions are the feelings concerning death which our culture has rooted deeply within us. While we study death scientifically, dispassionately, in the background of our consciousness is

". . . . the whispering crowded room,
The friends who come and gape and go;
The ceremonious air of gloom—
All, that makes death a hideous show!"[4]

It is immature to follow one philosophy in the autopsy room and another in private life. The blasé medical neophyte swinging virgin stethoscope is but fooling himself by either completely ignoring the soul or by shutting it up in a separate compartment of his consciouness. From the silence of his primeval forest, Schweitzer writes, "The one possible way of giving meaning to man's existence is that of raising his natural relation to the world to a spiritual one." By all means we must consider our labours with the human body sanely and scientifically. A scientist sees beauty not only in inanimate nature, but particularly in the perfection of bodily structure and function. Here another trap awaits us. If our interest is purely a cold scientific thirst for more facts rather than a wish for facts in order to apply them to the aid of mankind, our efforts completely cease to be meaningful. Mark Aikenside, physician poet of the eighteenth century, refers to science as the "sun of the soul." Sir Thomas Browne rather sees science as a study of the works of God through which we come to understand both Him and ourselves better and learn how to benefit humanity. It is not unscientific for Robert Bridges, Poet Laureate of England and chief of staff of the Great Northern Hospital, to think these thoughts at neonatal autopsy:

"Perfect little body, without fault or stain on thee,
With promise of strength and manhood full and fair,
Though cold and stark and bare,
The bloom and charm of life doth awhile remain on thee.

So quiet! Doth the change content thee? Death, whither hath he taken thee?
To a world, do I think, that rights the disasters of this?
The vision of which I miss,
Who weep for the body, and wish but to warm thee and awaken thee."

IV

"Men that look no further than their outsides think health an appurtenance

[4]This verse is from Matthew Arnold whose poetry and thought was often quoted by Sir William Osler.

unto life, and quarrel with their constitutions for being sick; but I that have examined the parts of man, and know upon what tender filaments that Fabrick hangs, do wonder that we are not always so." With Browne, we continue to be amazed that a system of such complexity and balance does function so smoothly that many people reach the age of arteriosclerosis. Illness and dysfunction is the exception, not the rule. The tragedy of illness and pain in the world is mourned by Keats:

"The weariness, the fever, and the fret
Here, where men sit and hear each other groan;
Where palsy shakes a few, sad, last, gray hairs,
Where youth grows pale, and spectre–thin and dies."

Henry Vaughan explained sickness as being wholesome because it forces the individual to consider those aspects of life which he would otherwise ignore. Schweitzer, on the other hand, states that no explanation of the evil in the world can ever satisfy him. To him, the only benefit of suffering is to the person who shows pity to the sufferer and thus diverts his own will-to-live from himself.

George Crabbe, physician and curate, devoted his poetic expression to pity for suffering humanity, particularly for those of the poor classes. In his long poem *The Village,* he voices the bitterest possible criticism against the physician "paid by the parish for attendance here" at the poor house where the old and sick lie unattended. The doctor enters,

"All pride and business, bustle and conceit;
With looks unaltered by these scenes of woe,
With speed that, entering, speaks his haste to go,
He bids the gazing throng around him fly,
And carries fate and physic in his eye:
A potent quack, long versed in human ills,
Who first insults the victim whom he kills;
Whose murd'rous hand a drousy Bench protect,
And whose most tender mercy is neglect."

In contrast, Thomas Browne, M.D., respected in life by his patients, and in death by his followers, writes, "I desire rather to cure man's infirmities than my own necessities." In his shadow, Albert Schweitzer sits beside his patient just recovering from anaesthesia. The native's eyes open in amazement at his vanished pain. The man of Lambaréné receives his reward. "His hand feels for mine and will not let it go."

THE CLASS OF 5T1

INTRODUCTORY NOTE

THIS SPRING MARKS the fifth consecutive year that the Journal has attempted to gauge the nature, opinions, and plans of the graduating class. From this year's questionnaire the number of filled returns was 108 or 62 percent, and in the hope that this may represent an interesting and even useful sample, we are tabulating the results in detail as answers to the questions as they were asked. Figures from previous years are included in several places for comparison.

5T0 and 5T1 entered the faculty together in 1945. Naturally most of the returning servicemen were enrolled in 5T0, the last of the wartime accelerated courses. By comparison, therefore, 5T1 has more women, fewer married students, a younger age range, and fewer ex-service personnel. Probably these trends will be reversed once more with the substantial group of veterans in 5T2 and 5T3, and will approach peacetime values only with the classes of 5T4 and 5T5.

In spite of this brief return to youthfulness with all its opportunities for prolonged specialized training, 5T1 will have more graduates planning General Practice (61%), than any other class in the history of our survey.

In what follows, the "canaries" are in fine print. It will be obvious from the nature of the questions that the accuracy of our figures will vary. It is easier to tabulate ages and birthplaces than suggestions and opinions. In fact in some places the percentages had to be dropped, to be replaced by the commonest suggestions or comments in descending order of frequency. After many of the questions, the *most typical answer appears in brackets.*

VITAL STATISTICS

1. Age on graduation? (24)

Age	5T1 %		5T0 %		4T9 %	4T8 %
21	—		—		4	1
22	1		2		35	44
23	25		6		24	32
24	41		17		11	10
25	11		18		8	4
26	4		19		2	2
27	8		12			
28	3	18	15	46	16	2
29	2		9			
30 and over	5		10			
Average	24		26		23	23

Sex? (Male) Are you married? (No)

	5T1	5T0	4T9	4T8
Total	173	158	156	130
Men	82%	95%	84%	84%
Women	18%	5%	16%	16%
Married	19%	39%	18%	?

If married, have you any children?

No children	9%
1 child	7%
2 children	3%

Are either of your parents, or any of your brothers and sisters, doctors? (No—78%)

2. Country of birth? (Canada)

Canada	93%	Equador	1%
England	2%	Syria	1%
Scotland	1%	Trinidad	1%
U.S.	1%		

If Canada, what province? (Ontario)

Total 93%

Ontario	74%	B.C.	7%
Saskatchewan	10%	Quebec	2%

3. What are your favourite hobbies and recreational activities? (Sports, Music, Reading)

(On approximate basis; total equals 200% owing to multiple choices)

Sports	58%		Dancing	20%	30%
Music	31%		Cards	5%	
Reading	29%	72%	Movies	5%	
Oil painting	6%		No hobbies	5%	
Photography	6%		20 others	35%	

In what fields other than medicine have you professional or technical training? (None)

55% None	4% Aeronautics
8% Scientific	4% Secretarial, receptionist
5% Camp craft	3% Farming, forestry
5% Carpentry and trades	3% Radio
4% Music	9% 10 others

ACCOMMODATION AND FINANCES

1. In Toronto; did you live

Mostly at home, with relatives, in a boarding house, fraternity, or elsewhere? (at home)

At home	61%	Fraternity	6%
Boarding	16%	Relatives	5%
Residence	12%		

Did you have good facilities for studying there? (Yes)

Yes 86% Fair 11% No 3%

2. Did you work in the summers? (Yes)

94% Yes (Paid)
4% Yes (Without pay)
2% No

Average earnings? ($400)

Average		Maximum	
Gross	$470	Gross	$2400
Net	$352	Net	$2000

How many summers did you work in a hospital? (One) In a laboratory? (None)

Hospital		Laboratory	
1 year	57%	0 years	90%
0 years	33%	1 year	7%
2 years	7%	2 years	3%
3, 4 years	3%		

Did you ever work in the Christmas holidays? (Yes) Part time during Medical terms? (No)

Christmas		Part time	
Yes	56%	No	81%
No	44%	Yes	19%

3. Did you earn enough from all sources (Plus DVA if you had it, plus your own previous savings, plus scholarships) to meet your medical education expenses? (No)

No 83% Yes 17%

If not, about how much help did you need over the six years? ($3900) Was most of this borrowed, in the sense that it must be paid back in cash? (No)

Not repayable	57%	Average $4500
Repayable	26%	Average $2700

UNIVERSITY LIFE

1. Did you participate in interfaculty Athletics? (Yes—51%)

If so, which ones? (Total 100%)

Basketball	25%	Football	11%
Volleyball	16%	Waterpolo	10%
Hockey	14%	9 others	24%

Did you participate in intercollegiate athletics? (No—92%)

Did you participate in unorganized athletics? (No—54%)

If so, which ones? (Total 46%)

Swimming	11%	Basketball	4%
Gym Class	7%	12 others	19%
Squash	5%		

Do you think intercollegiate sport as at present organized is a good thing? (Yes—73%)

Suggestions: 3 most frequent out of 5 (3/5).

Too commercialized.
Participation too narrow.
Amateur status inadequately defined.

2. Is Daffydil a worthwhile enterprise? (Yes)

Did you ever take part in it? (No)

Worthwhile		Took part	
Yes	100%	No	54%
No	0%	Yes	46%

If you never took part, did you ever see it? (Yes)

Yes 52% No 2%

Did you ever attend the Meds-at-Home? (Yes—85%)

Suggestions: (3/8)

Price too high.
Move date to weekend.
More informality.

What other faculty or interfaculty activities did you find most valuable or most enjoyable? (Medical Arts & Letters)

21%	Med. Arts & Letters	5%	Athletic Nights
13%	Class functions	5%	Medical Journal
10%	Hart House		
7%	Med. Christian Fellowship	5%	Panacea
		34%	18 others

Suggestions for increasing student participation in faculty activities when free time is so short. (5/15)

Activities should be more carefully screened by Medical Society.
More free time.
Better direction of student activities.
More publicity.
Explain activities to pre-medical years and stress their value.

3. Do you feel you should have had more opportunities to become better acquainted with your own class and with members of the other medical years? (Yes)

Yes 56% No 31% Doubtful 13%

In such a large faculty, suggestions for closer student-staff relations. (6/15)

Informal student-staff gatherings.
More interest in students by staff.
If possible, informal staff hospitality.
A tutor system.
If possible, become better acquainted with the Dean.
Clinic dinners.

Would a Medical Students' House with common rooms, facilities for eating lunch, help solve such problems? (Yes)

69% Yes	16% No
10% No opinion	5% A mixed blessing

4. Are college fraternities on the whole a good thing? (Yes) Did you join one? (No)

Good thing		Joined one	
Yes	53%	No	70%
No	23%	Yes	30%
Uncertain	24%		

If yes, would you advise a younger medical student to join? (Yes) If so, at what stage in his course? (Pre-med)

Join?		Stage of course	
Yes	27%	I Pre-Med	13%
No	3%	II Pre-Med	11%
		I or II Med	3%

Would you advise a professional or non-professional fraternity? (Non-professional) Which was yours? (Non-professional)

Figures for both questions:

Non-professional	16%
Professional	11%

5. Are you interested in politics? (Yes) Do you think a presentation of the claims of the political parties would have been valuable as part of your training? (No)

Interest		Part of training	
Yes	62%	No	60%
No	32%	Yes	36%
Slightly	6%	Undecided	4%

6. What was your final aim in entering medicine? (Community service)
(Total of 100% includes some multiple choices)

35% Community service
15% Scientific
12% Interesting lifework
10% Financial
8% Prestige
15% 5 others
5% Uncertain

In what way have your impressions of the medical profession been altered after 4 years training and associations?

24% Doctors seem more human.
15% Now have more respect for doctors.
12% Unchanged.
12% Now have less respect for doctors.
9% Doctors are not infallible.
28% 12 others.

What effect did the course have on your general values? (Little)

29% No answer
23% No change
20% Increased sense of values
10% More tolerant
10% Decreased sense of values
6% Values now in sharper focus
2% More critical of values

Should there be more lectures regarding the problems arising in medical ethics? (Yes—59%) If so, who should give such lectures?

20% A broad mixture of viewpoints should be presented
13% Doctors only
10% Non-hospital General Practitioners
6% Representative clergy and G.P.'s
6% Representative clergy and philosophers
4% Lawyers and social workers

7. Have you suggestions or strong opinions about

The Medical Society

62% No comment
15% Favourable
10% Unfavourable
4% More publicity
2% Deserves more support
2% Interests too diversified
2% Organize faculty activities better
3% 3 others

The Varsity

41% No comment
21% Non-specific unfavourable comments
10% Non-specific favourable comments
7% Too much advertising
6% Insufficient Meds coverage
15% 9 others

The U of T Medical Journal

Favourable	56%
No comment	34%
7 others	10%

All Varsity Aid

55% No comment
19% Non-specific favourable
15% Non-specific unfavourable
7% Charity begins at home
2% Should be on govt. scale
2% 2 others

Camsi

(a) Value for your dollar

50% No comment
27% Well spent
23% { 7% Fair, 8% Poor, 8% No value }

(b) The CAMSI Journal

42% Poor
40% No comment
12% Fair
6% Good

Hart House

41% No comment
33% Excellent
8% Wish it were co-ed.
7% Far away
6% Little time
4% Improve standards of dress
1% Keep open till last exam.

Medical Reading Room

30% No comment
21% Good
6% Too cold
6% Uncomfortable
20% 14 others
6% Too far away
4% Improve staff co-operation
4% Longer hours
3% Too noisy, telephone etc.

8. If you were ever a member of one of the following, please state for how long:

None	67%	
C.O.T.C.	25%,	Average 2.3 yrs.
U.N.T.D.	5%,	Average 2.3 yrs.
R.C.A.F. (U.F.)	3%,	Average 4.0 yrs.

THE MEDICAL COURSE

1. Which of the six years did you find heaviest? (III med.) Lightest? (Pre-med.)

Heaviest		Lightest	
III Medical	52%	I Pre-med.	27%
I Medical	31%	II Pre-med.	26%
II Medical	13%	II Medical	18%
IV Medical	3%	IV Medical	17%
Pre-med.	1%	I Medical	6%
		III Medical	6%

Which of the six years did you find most interesting? (IV). Most profitable and informative? (III and IV med.)

Interesting		Profitable	
IV Medical	59%	III Medical	46%
III Medical	28%	IV Medical	45%
II Medical	6%	II Medical	6%
I Medical	5%	I Medical	2%
Pre-med.	2%	Pre-med.	1%

Do you feel the course included too much formal academic teaching, and did not allow sufficient time for assimilating the knowledge acquired, and for creative thinking on your own part?

Yes	48%	No comment	6%
No	43%	Uncertain	3%

Suggestions (5/8)
- More time in clinics.
- More seminars.
- Closer lecture-laboratory co-ordination.
- More didactic in Psychiatry.
- Less didactic in Hygiene.

2. Which 3 clinical subjects did you enjoy most? Which 3 seemed best taught?
(Total converted to 300% owing to multiple choices)

Enjoyed	Taught
85% Medicine	86% Medine
66% Paediatrics	63% Paediatrics
60% Obstetrics & Gynecology	53% Obstetrics & Gynecology
59% Surgery	37% Therapeutics
13% Dermatology	26% Surgery
9% Therapeutics	26% Dermatology
5% Psychiatry	4% Ophthalmology
3% 2 others	5% 3 others

Which 2 basic subjects did you enjoy most? Which 2 seemed best taught?
(Total converted to 200% owing to multiple choices)

Enjoyed	Taught
72% Pathology	88% Anatomy & Neuroanatomy
65% Anatomy & Neuroanatomy	68% Pathology
18% Physiology	14% Histology
16% Histology	9% Bacteriology
13% Biochemistry	9% Organic Chemistry
16% 7 others	12% 7 others

What clinic or laboratory class did you think was best organized?

20% Pathology	9% Bacteriology
19% Anatomy & Neuroanatomy	6% Dermatology
13% Medicine	5% Physiology
11% Paediatrics	17% 10 others

Did you react unfavourably to the way any subjects were taught or the practical work organized? (Yes—83%) (Total converted to 200% owing to multiple choices)

45% Hygiene	23% Surgery
33% Pathological Chemistry	24% Biochemistry
28% Physiology	21% Psychiatry
	26% 12 others

3. If you took it at Toronto, have you any comments on the pre-medical course?
- 28% No comment or not applicable.
- 25% Favourable non-specific comments.
- 11% Condense to one year.
- 10% Increase to 3 yrs. with B.A. degree.
- 9% Begin some medical subjects in Pre-med.
- 17% 4 others.

4. If you had it to-do over again, would you enter medicine? (Yes—90%)

If not, why? (4/6)
- Course too heavy.
- Would prefer arts course.
- Too competitive.
- Disillusioned re treatment of patients.

If yes, would you enter U of T? (Total 90%)

Yes	80%
No	6%
Uncertain	4%

If not, why? (3/4)
- The university, classes, and clinics all too large.
- Difficult to know the staff.
- High cost of living.

5. Did you have previous university training before entering the Medical course? (No—75%)

If so, how many years? (2.8) If you proceeded to a degree, what was it? (B.A.) (Total 25%)

Years		Degrees	
1 or 2	10%	B.A.	13%
3 or 4	14%	Other	3%
Over 4	1%	No degree	9%

Other university attended, if any?

5% B.C.	Total 14%
5% Saskatchewan	The other 11% with previous university training attended U of T.
4% 4 others	

On the whole, did you like U of T better? (No)

No 10% Yes 4%

If not, why? (3/6)
- U of T too large.
- Difficult to know staff.
- Less student warmth and enthusiasm.

FUTURE PLANS

1. What branch of medicine do you plan to enter? General Practice.

	5T1 %	5T0 %	4T9 %	4T8 %
General Practice	61*	54	57	27
Specialty	29*	26	40	56
Surgery	10	8	8	20
Paediatrics	7	3.5	3	8
Internal Medicine	4	2.3	5	12
Obstetrics & Gynecology	4	1.1	2	20
Psychiatry	3	1.1	6	10
Radiology	1	1.1		.8
Neuro-psychiatry		1.1		
Neurology		1.1		.8
Ophthalmology		1.1	3	.8

Physical Medicine		1.1		
Anaesthesia		1.1		.8
Undecided		3.5	11	
After G.P.**		1	4	
Teaching & Research	2	1	2	
Military Medicine		2		
Undecided	8	16	4	17

*Includes some who plan group practice.
**Separate question asked this year. See directly below.

If you hope to proceed from G.P. into a specialty, after how much G.P.? (2.9 years) (Total 29%)

Uncertain	15%	1-2 years	4%
Nil	2%	3-4 years	4%
		5 yrs. & over	4%

2. How long would you like to interne? (2.4 years) How long do you expect to interne? (1.9 years)

Like		Expect	
1 year	13%	1 year	43%
2 years	55%	2 years	37%
3 years	17%	3 years	12%
4 years	10%	4 years	5%
5 years	5%	5 years	3%

Do you expect to take this interneship in Canada? (Yes—81%) If not, where?

United States 12% United Kingdom 5%
Undecided 2%

How long would you like to spend in other (non-interne) postgraduate training? (Average, omitting "nils", 2.1 years) How long do you expect to spend in such training? (Average, omitting "nils", 1.8 years)

Like		Expect	
58% Nil (or uncertain)		74% Nil (or uncertain)	
14% 1 year	42%	15% 1 year	26%
14% 2 years		4% 2 years	
10% 3 years		4% 3 years	
4% 4 years		3% 4 years	

Do you expect to take this training in Canada? (Total 26%)

Yes	13%	United States	7%
Undecided	2%	United Kingdom	4%

3. Do you expect to practise in Canada?

Yes 93% No 5% Undecided 2%

If so, in what province?

62% Ontario 3% Alberta
10% B.C. 1% Manitoba
8% Saskatchewan 1% Newfoundland
8% Uncertain

If not, where?

2% Undecided 1% United States
1% Africa 1% India or West Indies

Will you be practising in a city of over 15,000, a town, or a community of 1000 or less? (Town)

Will practise in		Permanent home now in	
Town	39%	City	73%
City	35%	Town	18%
Uncertain	19%	Rural	9%
Rural	7%		

Have you a definite opening or opportunity? (No) Will you be in partnership with an older practitioner? (Uncertain)

Opportunity		With older M.D.	
No	87%	Uncertain	45%
Yes	10%	No	38%
Uncertain	3%	Yes	17%

4. Would you like to practise as part of a group? (Yes) If yes, permanently? (Yes)

Wish to be in group		Permanently (Total 70%)	
Yes	70%	Yes	37%
No	21%	No	19%
Uncertain	9%	Uncertain	14%

How many practitioners would you want in such a group? (4) Would you be a specialist or G.P. in the group? (G.P.)

Number in group	Specialist or G.P.
24% Four	40% G.P.
15% Five	23% Specialist
11% Three	7% Uncertain
9% Six and over	
5% Two	
6% Uncertain	

Would you want such a group to co-operate to the extent of pooling clerical expenses and staff, expensive specialized equipment, office accommodation? (Yes) Do you **expect** to participate in a group scheme? (Uncertain)

Pooling	Expect to be in group
Yes 66%	Uncertain 28%
No 4%	No 22%
	Yes 20%

5. Would you accept a post in the field of industrial medicine? (No) If so, would you prefer such work on a part or full time basis? (Part time)

Accept post		How much time (Total 43%)	
No	49%	Part time	40%
Yes	43%	Full time	3%
Uncertain	8%		

As a temporary or permanent arrangement? (Temporary) Would you insist on doing such work outside of the plant? (No) (Totals for both, 43%)

How long		Outside the plant	
Temporary	31%	No	28%
Permanent	5%	Yes	11%
Undecided	7%	Immaterial	4%

6. Are "Health insurance plans" (such as the Associated Medical Services) a good thing for the public? (Yes) For our profession? (Yes)

Public		Profession	
Yes	93%	Yes	86%
No	3%	No	7%
Undecided	4%	Undecided	7%

Do you expect a substantial degree of socialized medicine in Canada within 10 years? (Yes)

Yes 58% No 37% Undecided 5%

Is socialized medicine on the whole a good thing for the public? (No) For our profession? (No)

Public	Profession	
48% No	74% No	77%
44% Yes	3% Qualified no	
8% Undecided	12% Yes	17%
	5% Qualified yes	
	6% Undecided	

7. If you were to serve with one of the Armed Forces, which would you choose? (Army)

Army 40%	Airforce 23%
Navy 28%	Undecided 9%

What are the chances of Canada being involved in general war within the next 5 years?

7% Inevitable	8% Slight
29% Very high	8% Very slight
22% Quite high	3% Impossible
13% Fair; even	10% Undecided

8. Have you other opinions, suggestions or additions in connection with this questionnaire? (No)

None 75% 30 others 25%

Suggestions 2/30:

Include more space for constructive critical comments *re* courses. Earn staff interest in the questionnaire as something which could be useful.

D.V.A. STUDENTS

1. Which service were you with? (R.C.A.F.

	5T1	5T0	4T9
Ex-service	22%	81%	15%
R.C.A.F.	13%	43%	7.5%
Navy	6%	13%	6%
Army	3%	24%	1.5%
C.W.A.C.		1%	
Non-exservice	78%	19%	85%

How long did you serve? (3.0 years)* How long were you on DVA? (4.2 years)*

Service		D.V.A.	
0-1 year*	4%	1 year*	3%
1-2 years	4%	2 years	2%
2-3 years	5%	3 years	2%
3-4 years	5%	4 years	4%
4-5 years	2%	5 years	3%
over 5 yrs.	2%	6 years	8%

*Length of service is in calendar years. D.V.A. is in academic years of eight months each.

(For all questions on D.V.A. students, totals equal 22%)

2. Did you complete High School before enlisting? (Yes) Would you have entered Meds without DVA? (Probably)

Completed High School		Entered without DVA	
Yes	20%	Probably yes	13%
No	2%	Probably no	9%

3. During the period you were on DVA did you ever take advantage of DVA medical services? (No) Dental services? (Yes)

Medical		Dental	
No	12%	Yes	17%
Yes	10%	No	5%

4. In retrospect, what is your opinion of the whole DVA plan? (enthusiastic approval)

18% **Strongly** favourable
3% Qualified favou**rab**le
1% No opinion.

DERMATITIS MEDICAMENTOSA

HAMNETT A. DIXON, M.D. F.R.C.P.(C)*

DRUG ERUPTIONS ARE caused by drugs or their split products, carried to the skin by the general circulation. Any tissue may be affected, *e.g.* blindness may occur from the effect of Tryparsamide on the optic nerve and liver damage is not uncommon following intravenous therapy with Arsenic.

The drug may be given by mouth, injection, inhalation or inunction and absorption may come from the skin, bladder, an open wound, conjuctiva, mucosa of mouth, nose, rectum, vagina or the milk in breast feeding.

The lesions may be the result of cumulation of the drug, *e.g.* argyria due to Silver, but in most cases they arise through allergic reaction.

In support of the theory of allergy, the following observations are worthy of note.

1. In most persons drug lesions do not occur.
2. The lesion may arise from minute doses and at time long after the last dose.
3. Eruptions occur from the same or related drugs and identical lesions may arise from unrelated drugs.
4. One drug may produce different lesions in different persons or different lesions in one person at different times.
5. A person sensitized to one drug may become sensitized to another drug unrelated to it.

CLINICAL DATA

Lesions tend to occur in certain tissues and sites.

Some drugs produce "fixed" lesions. A "fixed" lesion is one that remains for weeks to months after the drug has been discontinued and recurs in the same or "fixed" sites on repeating the drug. They may be erythematous, eczematous, bullous, pigmented, herpetiform, or pruritic.

In establishing a diagnosis the physician must remember that drug eruptions like those of syphilis are capable of mimicking any dermatological entity from simple pruritus to severe and fatal dermatoses. However, one drug tends to produce a certain type of lesion and some drugs more than others produce skin lesions.

They may be local, generalized or "fixed". They develop suddenly, are bright in colour, and are not very irritable. They increase in severity if the drug is continued, clear as a rule in a few weeks on discontinuing the drug, and flare on re-exposure.

The patient may complain of nausea, cramps, diarrhoea, pain in arms and legs, tinnitus, rhinitis, pharyngitis and at times, fever.

The chemical analysis of body fluids may show presence of the offending drug, for example, the high blood content of Bromine in bromide eruption.

Many patients will not admit taking "proprietary" medicines. The physician must be a good "detective", highly "suspicious"; he must question and requestion. Be doubly suspicious of recurrent skin lesions and dermatoses of unknown origin. For example, Phenolphthalein occurs in one hundred proprietary laxatives; it may occur in pink mouth wash, pink tooth paste and pink cough lozenges. The drug causes burning of

*Associate Professor of Medicine.

the tongue and buccal mucosa, changes in the mouth and penis resembling syphilis or pemphigus, pigmentation under finger and toe nails, and "fixed" lesions. The latter are bright red or dark red patches on trunk, arms or legs.

Drugs cause a variety of lesion imitating common skin diseases, for example.

Acne

Furuncle—from bromides and iodides.

Bullous

Ulcerative

Verrucose—from bromides, iodides, sulphonamides.

Eczema—from sulphonamides, Quinine, Mercury and salicylates.

Erythema Multiforme — from Phenolphthalein, barbiturates, Penicillin, sulphonamides, salicylates.

Erythema Nodosum—from iodides, bromides, sulphonamides, and salicylates.

Fixed Lesions—from Phenolphthalein, Arsenic, Quinine, barbiturates, salicylates iodides, Mercury, Gold, sulphonamides and Bismuth.

Lichen Planus—from Atabrine, Gold, Arsenic.

Light Sensitivity—from sulphonamides.

Pigmentation—from Arsenic, Silver.

Purpura—from iodides, Arsenic, barbiturates and sulphonamides.

Scarletiniform and Morbilliform —from Arsenic, Penicillin, salicylates, sulphonamides, Mercury, Belladonna.

Urticaria—from Penicillin, sulphonamides, salicylates, barbiturates, Belladona, Morphia, Arsenic, Phenolphthalein, bromides, iodides.

Vesicles—from iodides, bromides and barbiturates.

EFFECT ON FORMER LESIONS

As one would expect, many skin diseases may be aggravated by the above mentioned drugs, for example:

Acne—by bromides.

Furuncle—by bromides.

Eczema—by salicylates.

Purpura—by barbiturates, Arsenic, gold salts, and sulphonamides.

Seborrhoeic Dermatitis—by gold salts, Arsenic, Penicillin and sulphonamides.

Urticaria—by salicylates, bromides and iodides.

SUBSTITUTIONS

In many cases where drug eruptions occur, while it is important at the onset to discontinue taking all medicines, it may be necessary to give a substitute drug. Therefore if barbiturate is the drug causing the eruption, the patient should be given Bromide, or Iodide or Chloral Hydrate. If Arsenic (in Syphilis), give the patient Penicillin. If it is Salicylate, the substitute drug would be Antipyrine. If it is Phenolphthalein, the substitutes are Cascara, Milk of Magnesia or Mineral Oil. If it is Bromide, the substitute drug is a barbiturate or Chloral Hydrate. Again, if the eruptions are caused by sulphonamide, the substitute drug is an antibiotic; and if it is Penicillin, the substitute drug would be another antibiotic.

THERAPY

There are not many remedies and fortunately it is only necessary to eliminate the offending drug.

For purpura, give Ascorbic Acid 500 to 1000 mgm. daily by mouth or give vitamin K two mgm. daily for not more than four weeks. For light sensitivity, give Nicotinamides 200 mgm. daily by mouth. For Urticaria give antihistamine

substances 25 mgm. to 50 mgm. by mouth three to four times a day or give whole blood, 10 c.c. to 20 c.c. intramuscularly once a week for three to five weeks.

The following application will be found soothing:

Phenol	gr. 5
Menthol	gr. 1

Linimentum Calaminae (C.F.) ad oz. 1

It is applied freely many times a day, the excess wiped off and the areas dusted over with borated talcum powder.

RECENT ACCESSIONS TO THE MEDICAL READING ROOM

American public health assoc.: **The control of communicable diseases in man.** ed. 7. 1950.
Andersen, S. R.: **Investigations into differentiation and other morphological changes in malignant tumours following therapeutic irradiation with x-rays and radium.** 1949.
Baruch, S.: **An epitome of hydrotherapy for physicians, architects and nurses.** 1920.
Grut, A.: **Chronic carbon monoxide poisoning.** 1949.
International Refugee Organization: **Professional medical register.** n.d.
Lewis, C. D.: **Medical Latin.** 1948.
Madsen, S.: **On the classification of the Shigella types.** 1949.
Merck manual of diagnosis and therapy. ed. 8. 1950.
Penicillin in severe otorhinolaryngological complications; a symposium. 1950.
Saint-Jacques, D E.: **Histoire de la medecine.** 1935.
Seedorff, K. S.: **Osteogenesis imperfecta.** 1949.
U.S. National Heart Institute: **Abstracts of research in the field of adrenal and pituitary glands and extracts.** 1950.
Voetman, E.: **On the structure and surface area of the human choroid plexuses; a quantitative anatomical study.** 1949.

A PROBLEM IN DIAGNOSIS

W. H. O. MATTHEWS, 5T1

PRESENTATION OF CASE

Mrs. H. Y., age 27, was admitted to hospital February 5, 1951 with a complaint of severe abdominal pain of 8 hours duration. Pain was of sudden onset and generalized; it became progressively worse, with more marked severity in both lower quadrants. Right shoulder pain appeared 2 hours after onset. There was no nausea or vomiting but the patient felt weak and faint; she was unable to move because of pain aggravation.

HISTORY OF PRESENT ILLNESS

November 10: Onset of last normal menstrual period. *December 19:* Onset of dark brown vaginal discharge. *December 26:* Sudden onset crampy lower abdominal pain of 24 hours duration. This pain disappeared following the passage of a small "clot" per vaginum. At this point vaginal discharge also ceased. *January 10 to 15:* Intermittent lower abdominal pain aggravated by movement. *January 15:* Admitted to an outside hospital for investigation of her pain. AZ test reported positive. Clinical suspicion of Ectopic Pregnancy was not supported by findings on physical examination conducted at that time. Pain subsided in three days, and the patient was discharged from hospital after being informed that she had a normal intrauterine pregnancy. The patient states that her umbilicus was bluish in colour at that time. *February 1:* Onset of thin bloody vaginal discharge "resembling a normal menstrual flow." *February 5:* Came to the local hospital with complaint as outlined above.

OBSTETRICAL HISTORY

Menses 14/30/5-6 regular. DLNMP November 10, 1950. Para i Gravida ii; normal full-term pregnancy 1945.

PHYSICAL EXAMINATION

A pale apprehensive young woman in obvious abdominal distress; dorsal decubitus with knees in semi-flexion. BP105/60. Temp. 100R. PR100/min. *Abdomen:* slight distention especially in lower quadrants; respiratory excursion minimal; abdominal wall tense but not rigid; umbilicus of normal colour; tenderness generalized both direct and rebound, no point of maximum. *Pelvic:* blood tinged vaginal discharge; cervix soft with downward and slightly backward inclination; pressure in any fornix or movement of cervix produced such exquisite tenderness that adequate assessment of adnexal or other pelvic masses was impossible.

LABORATORY

Urine negative. Hb 54 per cent. WBC 17,000.

INVESTIGATION

PELVIC EXAMINATION UNDER ANAESTHESIA

It was considered necessary to confirm a clinical impression of Ruptured Ectopic Pregnancy. No adnexal masses were found but a slight fulness was detected in the posterior fornix. Uterus was enlarged to size of 4-6 week pregnancy.

POSTERIOR COLPOTOMY

A moderate amount of bright red blood was revealed but no blood clot or old blood was noted. Palpation through an enlarged colpotomy incision, however, disclosed a soft mass which was believed to be clotted blood. These findings were considered sufficient indication for laparotomy.

LAPAROTOMY

When the peritoneal cavity was opened a large amount of bright red blood was encountered. On the right Fallopian tube, in its middle third, an egg-sized ruptured ectopic pregnancy was identified. Many old blood clots also were found. The right tube and a large number of old blood clots were removed. Haemorrhage was controlled and shock satisfactorily treated throughout. Subsequent progress was uneventful.

PATHOLOGIST'S REPORT

The following statement is selected from the report: "The attachment of the placenta to the wall of the tube is seen at the site of the rupture where the muscularis is extremely thinned out." A red, friable, soft mass had ruptured through the tubal wall and was adherent to the broad ligament beneath the tube. Degenerating decidual tissue and chorionic tissue were present in the tubal lumen.

FINAL DIAGNOSIS

Intraperitoneal Rupture of Right Tubal Pregnancy.

COMMENT

Detailed discussion of the diagnostic peculiarities of this type of case are beyond the scope of this short article, but a few selected features may be briefly mentioned.

When a married woman in the reproductive age group, having no previous menstrual irregularity, fails to menstruate on schedule but shortly thereafter develops vaginal bleeding of a slightly different character than that of her normal menstrual flow, it is reasonable to first suspect either *Early Abortion* or the so-called *"Menstruation during Pregnancy."* The reported incidence of these two conditions is about equal, their total being estimated at about 1:5 pregnancies. In many cases they are ignored by the patient, who commonly dismisses them as merely a delayed (albeit slightly peculiar) menstruation.

EXTERNAL BLEEDING

In ectopic pregnancy hypertrophy and decidual development occurs in the "empty" uterus. Should the foetus die, the uterine decidua degenerates and may be discharged in small pieces accompanied by haemorrhage. In many cases this external haemorrhage and passage of variously described solid material is entirely of uterine origin. In an estimated 25 per cent of cases, however, there is no vaginal bleeding at all. The amount of bleeding is in any case somewhat less profuse than that seen in abortion and is not in itself sufficient to account fully for the degree of shock which may be presented. The explanations lie in the anatomical site and the variety of pothogenesis of the particular case. (q.v.)

INTERNAL BLEEDING

In those cases of ruptured tubal pregnancy wherein the rupture is intraperitoneal (or extraperitoneally into the broad ligament) rather than into the lumen of the tube, the resultant haemorrhage will obviously not contribute to the vaginal bleeding. This *internal* bleeding is, however, the major factor

underlying the clinical picture in most cases. It may be *of any degree* between that of acute shock proportions and the other extreme of very slow accumulation into a pelvic haematocoele which may be almost symptomless. The case here presented exhibits *both* acute and slow blood loss intraperitoneally, and vaginal haemorrhage which was probably entirely uterine in origin since the pathological specimen showed total obliteration of the tubal lumen by old clot.

ABDOMINAL PAIN

This is a prominent feature of ruptured ectopic pregnancy. Indeed, no differential diagnosis of abdominal pain or of "the acute abdomen" in the reproductive female is complete without consideration of rupture of ectopic pregnancy. The pain is almost always of marked severity, is characteristically of sudden onset, may be recurrent as in our present case of slow intermittent intraperitoneal haemorrhage, and in 70 per cent of cases is not accompanied by nausea or vomiting. When localized it is typically lower quadrant and unilateral; but it may be generalized, bilaterally over the lower abdomen or over the whole abdomen. Commonly it may even be predominantly epigastric; and radiation to shoulder, subscapular region or supraclavicular areas, is frequent. *The most significant "pain"* (in 75 per cent of ruptured tubal pregnancies) *is that produced by vaginal examination, the exquisite tenderness especially elicited by movement of the cervix.* The abdominal pain of abortion is milder, tends to be midline, and resembles the pain of early labor or when early and less severe resembles that of menstruation. In cases of hydatidiform mole abdominal pain is characteristically absent.

Cullen's sign, the blue discoloration of the umbilicus as reported by this patient, is an extremely rare occurrence which has been attributed to intraperitoneal haemorrhage. It was not observed on her final admission.

It is of value to remember that it is possible for ectopic pregnancy to progress to the stage of rupture before the patient is aware—and before her doctors can be sure—that she is pregnant. Here, again, the explanation lies in the anatomical situation of the ectopic placenta. (q.v.)

Low haemoglobin, as noted in this case, is characteristic of slow, prolonged, or recurrent haemorrhage; elevated leucocyte counts appear usually only when more acute haemorrhage occurs. The final acute episode of abdominal distress, leucocytosis and elevated pulse may here be most likely attributed to rupture of the accumulated haematoma itself.

Objective findings in *early* manual pelvic examination of cases of *slow* haemorrhage may be entirely absent. This case showed no really marked pelvic masses even when examined late and under anaesthesia; it was not until instrumentation was adopted that any findings other than exquisite tenderness were disclosed. In such cases the major problem is the diagnosis itself.

ACKNOWLEDGEMENTS

To Professor Cannell who has kindly scrutinized the final draft of this presentation and to Doctors W. Allemang and F. E. Bryans who generously undertook to prepare and make available the original material.

REFERENCES

(1) Eastman: Williams Obstetrics, 10th Ed. (Appleton).
(2) Zachary Cope: The Early Diagnosis of the Acute Abdomen, 9th Ed. (Oxford).
(3) Novak: Textbook of Gynecology, 3rd Ed. (Williams & Wilkins).
(4) Boyd: Textbook of Pathology, 5th Ed. (Lea & Febiger).
(5) Miscellaneous Lectures and related Clinical Conferences in Gynecology.

THE UNIVERSITY OF TORONTO
MEDICAL JOURNAL
(AN UNDERGRADUATE PUBLICATION)

FACULTY ADVISORS
E. A. Linell, M.D.
J. Hepburn, M.B., F.R.C.P.(C.)
R. E. Haist, M.A., M.D., PH.D.

CONSULTANT EDITOR
G. L. Ralph, M.D.

EDITOR-IN-CHIEF
D. E. Yates, B.A.

ASSOCIATE EDITOR
R. L. Smith

BUSINESS MANAGER
I. A. Mitchell, B.A.

ASSISTANT EDITORS
R. D. Atkinson M. L. A. Auerback
A. Robertshaw, B.A.

EDITORIAL ASSISTANTS
A. Halpern Miss J. Griffin, B.A.
F. Fallis W. Kokeny
P. J. Janetos

ABSTRACTS
Editor: J. A. McKee
Assistant Editor: G. Halpern

ADVERTISING
Manager: B. Berman
Assistant Manager: W. E. Sullivan

CIRCULATION
Manager: A. G. Lowden, B.A.
Assistants: D. E. Boyarchuk, J. Goodwin

This journal is published six times during each year, between October and March, by the Medical Society of the University of Toronto, to serve as a medium for student expression and to bring to each student recent articles of scientific interest.

$2.50 per volume **50c per copy**

Authorized as Second-Class Mail
Post Office Department, Ottawa

EDITORIALS

INTERNE PLACEMENT POLITICS

When one comes to the point when graduation seems possible, it is interesting to make critical observations. The end of a course of studies is a favourable time for this because until then one cannot be sure that something will not occur to change an opinion or to influence thinking along a different channel. There are a few matters about interne placement that I could express to advantage, to have others than myself thinking about them or at least considering that perhaps they are worthy of thought.

Unfortunately, I have to write without a background of authority. However, the remarks do indicate how my classmates have reacted to prevailing influences and practices.

Viewed broadly, politics concern interneships in the management used to secure the success of the candidates involved. Hospitals promote policies which limit certain groups and then manipulate their choices so that they can support their own interests. This type of selection has merit when the scholastic ability or the dependability of the candidate are concerned, but falls short of reason when the hospital is without knowledge of these factors and uses other standards.

A prime example is the status of the woman interne. She is limited, not in her choice but in the number of hospitals that will take her. Often the young, ambitious woman doctor must accept a second-rate rotation or an inferior application because there are barriers as to how many of her sex are regarded as

"safe" or "handy" by a more favoured hospital.

A second example is the Jewish race which finds similar limitations. Many of them feel that they must go into the United States in order to get a suitable interneship. Often they stay out of Canada and provide no credit to our economy or to our prestige; and there can be little adverse criticism, if they are restricted here.

A more general example concerns the person who has not definitely planned the future. This person feels obligated to choose a large teaching hospital for a rotation. There exists a fear that a desire to do post-graduate work at a later date will be jeopardized if the rotating year is done in a small hospital with lesser recognition. Often the individual passes up a more practical interneship for a year of "necessary prestige" which might never be used.

Fitting into the overall picture is the use of connections and influence—the privilege, but unfortunately not the possession, of every applicant for interneship.

THE COST OF "LIVING"

It is pleasing to note that the medical profession can contribute to ease the financial burden of many patients in an era when day to day needs are so expensive.

The cost of living index climbs steadily and affects not only luxuries but also the staple goods of life—food and clothing.

The cost of medication for serious illness is constantly being decreased. Improvements of production methods make drug products more readily available and permit revisions in price in favour of the patient. This benefit is known by the diabetic regarding insulin; by the patient with pernicious anemia regarding liver extract and Vitamin B_{12}; by the person with chronic congestive heart failure regarding the cardiac glycosides and diuretics; by the patient with acute infection regarding antibiotics. These are substances used as staple goods of life in the health and welfare of the individuals concerned.

AVE ET VALETE

This issue completes the work of the staff of Volume XXVIII.

The Journal will get new life and will progress. A competent staff is already organized for the publication of Volume XXIX under the able direction of M. L. A. Auerback, Editor.

HUMANISM AND MEDICINE

H. B. VAN WYCK*

PART XVII

HUMANISTIC TRENDS IN 17th CENTURY THOUGHT

In the foregoing, some of the great scientific achievements of the century have been noted. Of equal importance to our modern world, were the new views on politics, philosophy, and religion.

To the tragic annals of the religious wars of the 16th and 17th centuries, those of a more humane age recoil with horror, to which is often added complete misunderstanding. G. K. Chesterton explains one point of view in his characteristic style: "The Secularist says that Christianity produced tumult and cruelty. He seems to suppose that this proves it to be bad. But it might prove it to be very good. For men commit crimes not only for bad things, far more often for good things. For no bad things can be desired quite so passionately and persistently as good things can be desired, and only very exceptional men desire very bad and unnatural things.

"Most crime is committed because, owing to some peculiar complication, very beautiful or necessary things are in some danger. . . . And when something is set before mankind that is not only enormously valuable, but also quite new, the sudden vision, the chance of winning it, the chance of losing it, drive them mad. It has the same effect in the moral world that the finding of gold has in the economic world. It upsets values, and creates a kind of cruel rush.

"We need not go far for instances quite apart from the instances of religion. When the modern doctrines of brotherhood and liberality were preached in France in the eighteenth century, the time was ripe for them, the educated classes everywhere had been growing towards them, the world to a very considerable extent welcomed them. And yet all that preparation and openness were unable to prevent the burst of anger and agony which greets anything good. And if the slow and polite preaching of rational fraternity in a rational age ended in the massacres of September, what an *a fortiori* is here! What would be likely to be the effect of the sudden dropping into a dreadfully evil century of a dreadfully perfect truth? What would happen if a world baser than the world of Sade were confronted with a gospel purer than the gospel of Rousseau?"

In the 17th century religious toleration, even in England, was unknown. It was assumed by the government that every citizen should hold the creed of

*Professor Emeritus of Obstetrics and Gynaecology.

the State and that outward uniformity could conceal or even nullify the radical differences of men, who could have destroyed each other in the name of conscience. Religious toleration and uniformity are only possible where a difference in creed is held to be of little or no importance. When, after the Wars of the Guises, Henry IV of France attempted to establish religious toleration and secured freedom of worship for the Huguenots, an exhausted France remained at peace, but only for a short time. With economic recovery, theological passions revived; and the reestablishment of orthodox conformity ended ultimately in the Revolution. In England, the attempt to maintain a rigid system of orthodoxy lost a King and an Archbishop their lives. The wars of religion in France cost over a half-million lives and the Thirty Years' War left Germany a desert wilderness. The English could at least claim that when their efforts at bloodless settlement ended in war "neither Roundhead nor Cavalier dishonored their cause and their country by the atrocities of a Tilly or a Guise."[1]

Bertrand Russell represents a point of view completely antithetical to that of Chesterton. He comments on the effect on science of the international chaos of the seventeenth century as follows: "The results of the Reformation and Counter-Reformation, in the intellectual sphere, were at first wholly bad, but ultimately beneficial. The Thirty Years' War persuaded everybody that neither Protestants nor Catholics could be completely victorious; it became necessary to abandon the mediaeval hope of doctrinal unity, and this increased men's freedom to think for themselves, even about fundamentals. The diversity of creeds in different countries made it possible to escape persecution by living abroad. Disgust with theological warfare turned the attention of able men increasingly to secular learning, especially mathematics and science. These are among the reasons for the fact that, while the sixteenth century, after the rise of Luther, is philosophically barren, the seventeenth contains the greatest names and marks the most notable advance since Greek times."

Among these, there was a renewed interest in the theories of government. The world had proceeded to a point from which it could no longer be recalled to the political unity of the vanished Roman empire or spiritual unity of the City of God envisaged by St. Augustine. This lost ideal imprinted upon the pages left by the greatest of mediaeval thinkers and poets had lost all actuality. The beautiful dream of Dante and St. Thomas Aquinas had ended in the vicious careers of the Borgias and the realistic cynicism of Machiavelli. The shattering of the mediaeval ideal by the corruption that seems inevitable in overweening political and ecclesiastical power must rank as one of the great historical calamities yet befallen in the way of man's advance. European unity perished. Not until the end of the first World War was revived the ideal of a supra-national unity and the supremacy of law over aggressor sovereignties. Machiavelli had disclosed the gulf between profession and practice. He was one of the first to proclaim the antagonism between public and private morals: this realistic approach to politics proclaimed that what might be acknowledged to be evil in the private sphere might be good in the public. This relieved all rulers of moral responsibility. This dilemma between public and personal ethical codes has been involved in

[1]J. A. Froude. The Reign of Elizabeth. Chap. XXXVIII.

all political philosophy since Machiavelli wrote "Prince." When the German philosophers of the nineteenth century substituted for the "Prince" the concept of the "State," patriotic support of despotic tyranny became the highest of virtues and the glory and power of the State became an end, rather than the individual welfare and happiness of its citizens.

It is a singular fact that, during the Cromwellian Wars when Englishmen were struggling for freedom, there appeared the most powerful treatise of all time in defence of tyranny. This was Hobbes' Leviathan, published in 1651. This work, which is still influential in political thought, taught unabashedly that might was right, that the "State" depends on its capacity to keep itself in power, and that this is the only criterion of its morality. The book, although grim, is a systematic and closely argued exposition of a philosophy which is the counterpart of German Nazism. Hobbes' theory assumed that man, as produced by nature was without morals; that he could be governed only by the discipline of fear; and, that without this discipline, his life would be "solitary, poore, nasty, brutish and short." His "sovereign," however, is not sovereign by divine right, but derives his authority by the submission of every individual in the "Commonwealth." Hobbes thus proclaimed that not potentates, but the people, as envisaged in contractual relations with their rulers, form the basis and source of power. This last concept was to lead to the revival of the democratic theory of the Greeks and became the special contribution of the English to politics and government.

A much more progressive political thinker was Sydenham's friend, John Locke. In "The Treatises on Civil Government," Locke accepted Hobbes' doctrine that the people are the ultimate source of power, but rejected all Hobbes' deductions in justification of tyranny. Locke cleared the air of all such casuistry in support of despotism; and, although it is debatable whether Locke believed in the social contract of Rousseau, Locke opened the door to the amendment of Government by putting monarchy or sovereignty on a legal basis which could be lawfully modified. Locke broke new ground by regarding right to property as prior to State and therefore as one of the rights which the State must protect. Also, he sounded a new note by advocating toleration of all "religious beliefs that are not inconsistent with civil society." From this, however, he excludes only atheists, "since social obligations can have no hold over them. The taking away of God dissolves all." In Locke's theories of government the authors of the "Glorious Revolution" of 1688 found support and his influence continued among the French and American revolutionists of the next century. In his advocacy of religious toleration, the doctrines of Locke are still in advance even of our times.

Philosophy of the seventeenth century was inevitably affected by the quickened interest in science. The men of science in so far as they confine themselves to those conclusions which the natural sciences justify adopt of necessity a materialist outlook. A necessary presupposition of the scientific method is that every event has a preceding cause and that a prediction from the latter to the former can be made with certainty. The research laboratory in the realm of matter must proceed experimentally with materialism as a working hypothesis. That such a hypothesis can be carried over into the other fields of psychology, ethics, politics,

aesthetics, and religion is still much more open to question.

If all events in the universe are subject to the laws which the scientist regards as governing matter, a materialistic philosophy implies determinism and mechanism and at once strikes at the root of our ordinary concepts of the duality of mind and body and our notions of free will and moral responsibility. That mind and body apparently react on each other is not disputable. The method of the interaction, however, is difficult to explain. If ideas and wishes, as common sense believes, are of a different order from nerves and muscles, how can these mutually interact? Psychosomatic medicine, which is much older than its new popular name, requires a philosophic basis; and the seventeenth century philosopher, Descartes, was the first and most important thinker to bring the problem into prominence.

Rene Descartes (1596-1650) has been regarded with justification as the founder of modern philosophy. His genius for independent thought was at the same time profoundly influenced by the new discoveries in astronomy and physics. While not completely cut off from his scholastic predecessors, he achieved an independent individualism and attempted to reconstruct philosophy on new foundations. To set about this *de novo* had not been done since Aristotle. The new science was giving philosophy a fresh self-confidence which carries the reader back to Plato. Descartes lived as the contemporary of Galileo for over forty years and numbered Newton among his disciples. Descartes sought to bring all knowledge within the scope of one incontrovertible discipline; and, in mathematics, he believed he found the method by which all truth could be reduced to a self-evident simplicity of invincible and interdependent statements. By this he sought to achieve a social harmony between science and life, a program to which the subsequent philosophy of Europe devoted much of its effort. He began by doubting everything except the fact of the existence of his own thought. From this, he proceeded to infer that knowledge of external things must be by the mind and not by the senses. To quote Bertrand Russell: " 'I think, therefore I am' makes mind more certain than matter, and my mind (for me) more certain than the minds of others. There is thus, in all philosophy derived from Descartes, a tendency to subjectivism, and to regarding matter as something only knowable, if at all, by inference from what is known of mind. These two tendencies exist both in Continental idealism and in British empiricism—in the former triumphantly, in the latter regretfully. There has been, in quite recent times, an attempt to escape from this subjectivism by the philosophy known as instrumentalism. With this exception, modern philosophy has very largely accepted the formulation of its problems from Descartes, while not accepting his solutions."

Descartes' philosophy developed a dualism of mind and matter which had been accepted by Christian philosophy from Plato. In the Cartesian system there are two independent but parallel worlds, that of mind and matter. Each can be studied without reference to the other. To Descartes, the mind did not move the body, nor did the body move the mind. Mind and body correspond to two independent clocks keeping exact time with each other.

In his theory of the material world, Descartes was deterministic. The freedom of volition of the human soul was,

however, allowed as an exception. This exception was dropped by the consistent materialists of the eighteenth century. Descartes' observation of contemporary science, in which he took a devoted interest, tempted him to carry over determinism from physical laws to the mental events in the parallel world of mind. Although Descartes attempted to preserve the idea of a free will, his disciples and followers found little difficulty in assuming that if animals were automata, the same thing could be said of man and that his whole philosophy could be thus made into a consistent materialism. Descartes contributed the invention of co-ordinate geometry to mathematics. He always entertained the vain hope of making some contribution to medicine and accepted with enthusiasm Harvey's discovery of the circulation of the blood.

The other leading influential philosopher of the century was Spinoza, who passed on from the dualism of Descartes to a complete pantheism.

The above is an all too brief sketch of the welter of new ideas that were appearing and were to influence profoundly the thought and action of the succeeding centuries. Enough has been said, however, to indicate that our modern world is still living on the intellectual capital accumulated by the giant minds of the seventeenth century. Science and philosophy were as usual reacting upon each other. The old battle of the intellectual and the spiritual was continuing, with new methods, new weapons, and new ideologies. It was natural that a naive mechanistic approach, strengthened by the new mathematics, should tend for a time to dominate philosophy, physiology and biology. It is interesting to note today, that such gross materialism is being generally abandoned, even in physics itself. That the scientist and the philosopher of our time would at last re-act strongly against the mechanistic materialism of the nineteenth century was foreseen by Goethe, who put into the words of Mephistopheles:

He that would study and portray
A living creature, thinks it fit
To start with finding out the way
To drive the spirit out of it.
This done, he holds within his hand
The pieces to be named and stated,
But ah! the spirit-tie, that spanned
And knit them, has evaporated.[1]

[1]Faust, tr. Martin, p. 87.

ABSTRACTS

MEDICINE

Gastric Changes in Pernicious Anemia: Arch. of Int. Med., 87: No. 1, 1951.
Arch. of Int. Med., 87: No. 1, 1951.

A review of the pathological changes shown in pernicious anemia.

In the body and fundus the mucosa is remarkably thinned and sharply demarcated from the pyloro-antral region. The glandular tubules are greatly altered showing a scattered irregular arrangement. They are decreased in number and length but increased in tortuosity with branching cystic dilatation of the tubules being frequent. The lining epithelium of the glands consists of undifferentiated cuboidal, mucus-secreting cells. The specific parietal and peptic cells are rare or entirely absent. Scattered islands of intestinal metaplasia of the mucosa are seen. The interstitial tissue is usually considered to be increased with an infiltration of numerous lymphocytes, plasma cells, eosinophiles and Russell bodies. Atrophy of the submucosa and muscularis has also been noted.

The pyloric and antral region is considerably thicker and reveals only slight gastric change. Investigation has shown that the argentaffin cells are absent in pernicious anemia and that they may normally elaborate the specific anti-anemic factor. There is an increased frequency of both benign and malignant tumours of the stomach in this disease. During relapse, gastroscopic observations reveal changes typical of atrophic gastritis of varying degree. During remission, following treatment with liver, the mucosa may be restored in variable degree to a normal gastroscopic appearance, but whether this represents a restitution to histologically normal mucosa has not been demonstrated.

The nature of gastric lesions is still unsettled, though inflammatory and degenerative processes have been invoked individually or together, to explain the mucosal atrophy.

W. H. B. Preston

Adie's Syndrome: A. B. Kern, J.A.M.A., 145: 230-231, 1951.

In this article, the author reports a case of Adie's syndrome which was misdiagnosed as tabes dorsalis. The typical lesions were described in 1902 but were clearly delineated by Adie in 1932. He describes two main divisions:

the complete form—typical tonic pupils and absence of reflexes;
the incomplete forms—(a) tonic pupil alone;
(b) atypical phases of tonic pupil alone;
(c) atypical phases of tonic pupil with absent reflexes;
(d) absent reflexes alone.

The characteristics of the *tonic pupil* are: unilateral, larger than normal, oval or irregular in shape. Direct and consensual light reactions totally or partially absent; however after one hour in a dark room, on exposure to a bright light it will slowly constrict. On convergence—the pupil will contract slowly and may become pin-hole in size; the pupil reacts normally to mydriatics and miotics.

The tendon reflexes are lost in one or both legs. The condition occurs more commonly in females, usually young adults. Its etiology and pathogenesis are obscure.

The case described was of a young woman who was referred to the author for treatment of syphilis of the nervous system which was "discovered" on a premarital examination. The pupils were found to be unequal, and did not react to light except after one hour in a dark room. The ankle and knee jerks were absent. The patient denied exposure and the blood Wasserman and Hinton were negative. The rest of the physical and history were negative. Testing for convergence produced a slow reaction in the left pupil which became just larger than a pin-head. The patient was re-assured that she did not have syphilis and of the benign nature of the condition.

The author presents this case suggesting the need of focussing general attention on this benign entity which is so frequently erroneously diagnosed at tabes dorsalis.

D. M. Fraser

The Antihistaminic Drugs in the Treatment of the Common Cold: F. C. Lowell. I. W. Schiller, J. E. Alman, and C. F. Mountain, New Eng. J. of Med., **244:** No. 4, 1951.

Although the common cold is a symptom complex without pathognomonic, objectively recognizable features and thus easily confused with other diseases of the respiratory tract, the authors have attempted to assess the value of the antihistaminic drugs in the therapy for this disease. This work was partially necessitated by the numerous claims of pharmaceutical firms and popular science magazines of the value of these drugs.

Between January 19 and April 18, 1950, 1,214 volunteers at Boston University were offered "new cold tablets" for treatment of colds. These tablets were 3 antihistamines: Trimeton, Neo-Antergan, Neolitramine, and a placibo, and were issued in successive order in sealed envelopes, the issuing officers unaware of the nature of the tablet issued. Each recipient filled out questionnaires on their first visit and on a visit three days later. The questions were so masked that the nature of the survey was not obvious. The results were subjected to statistical analysis. In the dosage used, no effects could be differentiated upon the common cold between the three antihistamine products and the placebo.

M. Abbot

Pheochromocytoma and Hypertension: J. B. Graham, J. of Surg., Obst. & Gyn., **92:** 105-108, 1951.

The author reviews 207 cases of pheochromocytoma with hypertension in which epinephrine and nor-epinephrine are regarded as the active vasoconstrictors. Theoretically, these tumours occur anatomically wherever chromaffin tissue is found, not only at maturity but also at various stages of embryological development. Actually, tumours of importance in hypertension are found, as a rule, in or adjacent to the adrenal gland.

There are two general types of hypertension with pheochromocytoma, a paroxysmal and a sustained variety. The former is characterized by an intermittent outpouring of epinephrine-like substance with explosive elevation of the blood pressure and striking symptoms; the latter has a more constant output of vasoconstrictor substance with a resulting persistently elevated pressure and symptomatology resembling essential hypertension. Paroxysmal attacks can be induced with histamine or tetraethylammonium bromide, but this is hazardous and should not be resorted to unless necessary. Patients with sustained hypertension usually have paroxysmal elements in their history frequently show postural hypertension and a decrease in blood pressure specifically after the administration of benzodioxane.

Roentgenograms, especially pyelograms, are of the greatest usefulness in localizing the tumour for which the treatment is surgical excision.

H. Axelrod

Hormones of the Sympathetic Nervous System and the Adrenal Medulla: U.S. von Euller, B.M.J., **4698:** 105, 1950.

The excitatory and inhibitory actions of sympathetic nerves are believed to be mediated by two amines adrenaline and nor-adrenaline. There is considerable difference in their relative effectiveness on different organs. The circulatory effect of nor-adrenaline is vasoconstriction with no change in the minute volume of the heart whereas adrenaline produces vasodilation with a rise in the minute volume. Noradrenaline is less calorigenic and glycaemic, less effective in liberating adrenocortical hormones, less toxic, and more resistant to oxidation than adrenaline is. It may be assayed biologically or colorimetrically against a chemically pure substance. It has been found in almost all tissues and organs in the body including the blood, and in aqueous humor, urine, and glandular secretions. Adrenaline accounts for only a small percent of the catechol amines in adrenergic fibres.

Nor-adrenaline, the dominating adrenergic neurohormone, appears to act

for general service, with adrenaline acting as an adjuvant for special purposes.

B. W. Hyatt

Gametogenic Failure with High Urinary Gonadotropin (F.S.H.), E. P. McCullough, W. T. Sirridge, H. W. McIntosh, J. Clinical End., **10:** No. 12, 1950.

Fifteen patients with azoospermia and oligospermia are presented. All the patients except those who were cryptorchid were shown by testicular biopsy to have impaired function of the germinal epithelium with normal Leydig and Sertoli cells. They all had high titres of urinary gonadotropin and normal levels of urinary 17 keto-steroids.

They mention Hellers theory of the high urinary gonadotropin being due to its non utilization by the diseased testis, but do not hold to this theory. They suggest that the germinal epithelium is a likely source of a second hormone (*i.e.* other than testosterone) with they call Inhibin and which regulates gonadotropin production by the pituitary gland.

They also mention that Howard believes that this Inhibin arises in the Sertoli cells.

D. A. Smith

DERMATOLOGY

Ammonia Dermatitis; Treatment with Diaprene Chloride Ointment: M. L. Nedelman and A. Bleier. J. of Paed., **37:** No. 5, 1950.

The authors report their findings in a series of 107 consecutive cases of ammonia dermatitis treated with Diaprene Chloride Ointment applications with each diaper change. They state that the cause of the condition is ammonia split from urea by:

(a) fecal bacteria: Bacterium Ammoniagenes.
(b) skin bacteria: Staph. Albus and Aureus.

They outline the use of two diaper rinses (Boric Acid and Mercury Bichloride solutions) and point out their chief disadvantages. One active measure is outlined in which Diaprene Chloride-impregnated diapers were used by Benson and collaborators to achieve an 87% cure within one week.

Diaprene Chloride, a most effective bactericidal agent against Bacterium Ammoniagenes, Streptococcus and Staphylococcus Aureus, is a quaternary ammonium compound used by the authors in an hydrophilic petrolatum base. Duration of treatment ranged from one to twenty-one days. Eight cases were unimproved. Three of these had an accompanying eczematoid dermatitis and when this cleared the ammonia dermatitis responded favorably.

Fifty cases were patch-tested to determine whether the drug was a primary irritant or secondary sensitizer. There were no reactions up to 72 hours.

W. K. Rock

Psychological Treatment in Skin Disorders: H. J. Showan, A. J. Roate, D. S. Wilksinson, B.M.J., No. 2, 1300, 1950.

During the last 30 years there has been an increasing realization of the importance of psychological factors in the production or precipitation of certain skin disorders. But the literature on psychological aspects of skin conditions contains few references to treatment. The tendency has been for psychiatrists to treat cases referred from dermatologists by systematic long term individual or group psychotherapy, but because of its time consuming nature the method is necessarily limited to a few patients. Treatment by "drug abreact" takes less time. Everyone knows that the free discussion of significant events or "getting things off one's chest" can result in relief of pent-up tensions. Freud and others observed that if the revived traumatic incidents are relived with emotional intensity and vividness (or in other words, if the patient abreacts) a striking relcase and relief of tension may occur. The more intense the emotion aroused and its release, the more successful the abreaction.

Irrespective of its cause tension is present in many skin disorders. The relief of

this tension can result in amelioration or even disappearance of the skin condition. The application of the abreactive technique in treatment of certain skin disorders is described and an attempt has been made to define the criteria for employment. Five illustrative cases are reported. The authors point out also that because some cases can be cured or alleviated by this treatment, it does not necessarily follow that they are caused by such factors (though in the cases chosen they probably were of primary aetiological importance).

They suggest that the abreactive technique offers a practical and useful method of treatment of certain skin disorders.

I. M. Eisen

SURGERY

Suggestions for First Aid Treatment of Casualties from Atomic Bombing: R. Warren, J. H. Jackson, New Eng. J. of Med., **243:** 18, 1950.

Knowledge of first-aid treatment for casualties resulting from atomic bombing is based largely on the results of two bombs dropped at Nagasaki and Hiroshima. With bombs of this type, 100,000 casualties, more or less, may be expected. Of these, approximately 20,000 will be killed outright, 40,000 will be immediate hospital cases, 20,000 more will be ambulatory casualties. Another 20,000 will not report immediately. Approximately 50,000 people can be expected ultimately to die. Good medical management may save the lives of 10,000.

After an attack the doctor's function would be two-fold: to render first-aid and to engage in casualty sorting. This he would do independently or as a member of a civilian defence team, depending upon the situation.

1. First-Aid: Three types of injuries are recognized: (a) Physical Trauma. Trauma due to falls or flying debris is present regardless of the type of weapon, and the principles for first aid are well known. (b) Burns. Burns are seen in 60-85% of the survivors, and are of two types: flash and flame. A sterile occlusive dressing with a petrolatum or lanolin ointment base is applied with light dressing. Pain and shock are treated as always, and severe shock tagged for further treatment. (c) Radiation Injury and Radio-Active Contamination: This is present in 30%, and is from two sources: direct gamma rays from the burst, and delayed injury from contact with fission products. Besides discussing treatment, 3 principles of dealing with contamination are presented; those of (i) Recognition of Contamination, (ii) Decontamination, (iii) Avoidance of Contamination.

2. Casualty Sorting: Firstly, an overall survey of the situation is attempted, followed by tagging of each patient with his diagnosis, location during explosion and radiation dose. Further, surgical casualties are classified in order of priority for treatment, as follows:

(a) Those who need definitive treatment as soon as possible.
(b) Those who need immediate definitive treatment but may wait until group (a), above, has been dealt with.
(c) Those who need immediate resuscitation and rest, but no operation during the first few hours.
(d) Those who after receiving first-aid should be transferred to a centre for special treatment.
(e) Those who may be sent home after some form of simple treatment.

New hospital cases with potential radiation sickness must be followed carefully, in order that therapy can be begun as soon as the diagnosis is established.

J. J. Zeldin

Treatment of Carcinoma of the Prostate: G. G. Smith, J. of Urology, **64:** No. 5, 1950.

Rectal palpation is the most reliable test for early diagnosis. Needle biopsy is unsatisfactory and cell diagnosis of the secretion to be useful requires an expert.

At present, the only hopeful approach is perineal total prostatectomy. Early diagnosis in a patient over 75 years and the institution of adequate hormonal therapy probably will give a good chance of survival.

The patient's general condition should be good enough to withstand an operation.

To be thoroughly suitable for radical prostatectomy, the prostate should be well outlined, the capsule clean cut, and the membranous urethra, trigone and seminal vesicles uninvolved. The blood acid phosphatase should be normal and x-rays of the spine, pelvis and chest clear. Hormonal therapy should be started soon after operation.

In this series of 76 cases extending over the past twenty years, 25 lived over 5 years, 12 lived over 10 years, 30 are still living without recurrence and 5 with recurrence. Recurrence demands rigorous hormonal therapy. Urinary control was satisfactory in 80%.

The essential points in hormonal therapy are:

1. Removal of the main androgen source (testis),
2. The administration of small amounts of estrogen to neutralize any androgens produced by the adrenal.

No definite results can be reported as yet but a number of cases are comfortable 7 to 8 years after the institution of hormonal therapy.

J. E. F. Hastings

Splenectomy for Traumatic Rupture with Intra-Abdominal Haemorrhage: R. V. Byrne. Los Angeles M.J., **61:** 273, 1950.

The diagnosis of traumatic rupture of the spleen depends primarily upon intra-abdominal haemorrhage which is the most urgent indication for splenectomy. There are no laboratory or investigative procedures which may be used on the Trauma to the spleen without intra-abdominal haemorrhage occurs frequently but these patients do not come to surgery.

The haemorrhage may be of two types: in the first the haemorrhage occurs immediately after the injury, in the second there is a delay of one to fourteen days following the injury. Those patients with immediate haemorrhage have the largest number of associated injuries which tend to mask the clinical signs of haemorrhage. In acutely ill patients the single greatest diagnostic aid is abdominal paracentesis. In cases of delayed haemorrhage from traumatic rupture of the spleen a history of trauma may usually be had from the patient on admission; however, in those with such a history the acute abdominal condition may be mistakenly thought due to other visceral lesions. Most frequently noted was the triad of abdominal tenderness, rigidity and pain in the shoulder. In a large percentage of patients this was sufficient for diagnosis.

The author believes that spontaneous rupture of the normal spleen does not occur. In those cases with failure in development of the normal ligamentous attachments of the spleen, if rupture occurs then one can always elicit a history to explain it. An examination of surgical specimens grossly and microscopically indicates that delayed haemorrhage following trauma is not always due to delayed rupture of the spleen. It was found that in cases of delayed rupture the capsule of the spleen is intact after trauma and the lesion and bleeding are in the parenchyma with later capsular rupture and bleeding into the abdomen. The spleen may rupture at the time of injury and intra-abdominal haemorrhage be delayed by tamponade. Lacerations and ruptures in the spleen involving the capsule result in immediate haemorrhage into the abdomen in the majority of cases. Immediate haemorrhage occurred in cases in which it was found that the splenic tissue was macerated, the organ bisected or that the lacerations were in the hilar region.

Treatment consists of bold delivery of the spleen through a left rectus incision (and for adequate exposure of the splenic vessels in the pedicle rotation toward the midline with the diaphragmatic surface down.) The highest age incidence was one to twenty. Ninety percent of admissions were in the age group of one to fifty. The highest mortality rate was in patients with gunshot wounds of the abdomen in which other structures were injured

R. E. Stokes

Abnormalities of the Upper Respiratory Tract in Kartagenei's Syndrome. T. M. Banham, Jour. of Laryn. and Otology, **64:** No. 2, 1950.

In 1933, Kartagenei described 11 cases of a syndrome consisting of complete

transposition of the viscera associated with bronchiectasis. Later, absence of the frontal sinuses was noted as an additional physical sign. Infection of the nasal sinuses has been described in several cases.

The case presented (male, age 44, who had spent five months in sanitarium after an attack of left-sided pleurisy, and who had a long history of deafness of a mixed type) suggests that congenital abnormality of the walls of the bronchioles may be the causative factor for the bronchiectasis and cystic condition of the lungs. At birth, the maxillary and mastoid antra are well-formed cavities but the frontal and sphenoid sinuses and the ethmoidal air cells are undeveloped. In the case discussed, the normal development of nasal sinuses and pneumatization of the temporal bone were arrested at or shortly before birth. The lax tympanic membranes with ballooning or inflation of the Eustachian tube may have been produced by abnormal pressure exerted on the membrane when the normal cushioning effect of a developed mastoid antrum and air cell system is lacking.

R. D. MONTGOMERY

NEWS AND NOTES

MEDICAL SOCIETY

The annual Medical Society elections were held on Monday March 5th, at the C.O.T.C. Drill Hall. The successful candidates include: S. L. Wax, President; J. F. Mustard, Vice-President; A. G. MacIntyre, Treasurer; P. D. Hopkins, Secretary. The newly elected Class Presidents are G. Secord, 5T2; F. Fallis, 5T3; E. A. Silverstein, 5T4; T. A. McCulloch 5T5; W. McIlroy, 5T6. The President of the Medical Women's Undergraduate Association is Miss A. J. Carter; P. Rosen is President of the Medical Athletic Association and Miss I. Haine is the President of Medical Women's Athletic Association. The newly elected Chairman of Toronto CAMSI is M. F. Francis.

* * *

The Annual Athletic Banquet was held on March 26th when Dr. Paul McGoey was the guest speaker for the evening. The highlight of the evening was the presentation of Athletic Awards to members of the undergraduate body. Those receiving Special Awards include E. Ricci, P. Rosen, L. Rosen, H. Hyde, J. R. MacKenzie, M. DuBoulay, D. Wigle, W. Trusler, and D. Smith.

Medical M's were presented to J. Thomson, M. Auerback, G. Darby, C. Palmer, D. Daley, D. H. Smith, G. Cousens, D. Barr, J. MacDonald, W. Noonan, J. Watt, W. Waiters, H. Thompson, E. Silverstein, P. Hopkins, D. Shay, F. Rundle, D. Jones, W. Baker, and J. Martyn.

Book-ends were presented to members of the Inter-Faculty championship Lacrosse team.

* * *

The Annual Women's Athletic Banquet was held on March 21st and on this occasion Awards were presented for active participation in athletics. The Guest Speaker was Dr. Joseph Sullivan, goaltender for the 1928 Olympic-winning Varsity Grads.

* * *

The initial paper read before the newly formed Oslerian Society was given by R. D. Atkinson, 5T1. It was appropriately entitled "The Life of Sir William Osler".

* * *

Dr. William P. O'Brian, a graduate of the class of 1901 and a founder of "Daffydil Night" died on March 11th. Dr. O'Brian was a Paediatrician on the staff of St. Michaels Hospital for almost fifty years.

* * *

J. R. Evans, one of Medicine's most popular and talented contributors to athletics on the campus of the University of Toronto has been awarded the George M. Biggs Trophy. The award is presented annually to the undergraduate who has contributed most to university athletics from the standpoint of leadership, sportsmanship and performance. For three years John was star tackle on the University of Toronto Blues Senior Foot-ball team and was awarded the Johnny Copp Trophy, the highest individual football award, last fall.

* * *

FACULTY

Dr. C. H. Best, Professor and head of the Dept. of Physiology left on Feb. 22nd for an extended lecture tour of South America. Dr. Best's itinerary includes lectures at the Institutes of Physiology at Lima, Peru, and Santiago, Chile; the universities of Montivideo, Uruguay and Soa Paulo, Brazil. A series of lectures are also scheduled to be held in Buenos Aires, Argentina and Rio de Janeiro, Brazil. While in Buenos Aires, Dr. Best will be present at the opening ceremonies of the Institute of Medical Research at Cordoba University.

* * *

The announcement has been made recentlv of the appointment of Dr. William Boyd as Professor of the Dept. of Pathology at the University of British

Columbia. Dr. Boyd, who for the past fourteen years has been head of the department of Pathology and Bacteriology at the University of Toronto is an internationally recognized figure in the field of medical sciences and his textbooks of Pathology enjoy universal recognition.

In accepting this position at the West-Coast university, Dr. Boyd will join Dr. W. Kerr, the recent Professor of Therapeutics at this university, who is Professor and head of the Dept. of Medicine at U.B.C.

* * *

ALUMNI

The fourth annual Round-table Discussion on General Practice was held on Feb. 26th under the auspices of the Medical Alumni Association. The meeting, organized to acquaint graduating students with problems in General Practice was held in the new Hospital for Sick Children. Members of the Panel included Drs. Taylor, Bastido, Henry, Edmunds and Ashmore. Dr. V. F. Stock was chairman of the meeting.

* * *

Dr. W. B. Spaulding, resident physician on the staff of the Toronto General Hospital, was distinctively honoured recently when he was awarded a $30,000 scholarship by the John and Mary R. Markle Foundation of New York. Dr. Spaulding is the first Canadian to receive this honour.

Dr. Spaulding was educated at Ridley College, St. Catharines, before entering the University of Toronto. He received his medical degree in 1944 and, after service in the Royal Canadian Army Medical Corps, returned to do post-graduate work at the University of Toronto.

Dr Spaulding, who received a degree as Doctor of Psychiatry, will continue research in internal medicine and clinical work and will be engaged in clinical teaching on the staff on the University of Toronto Medical faculty while under the Markle award.

* * *

Adding to an impressive list of scholarships and bursaries, the Medical Alumni Association of the University of Toronto has made available beginning this year a $1,000 bursary for post-graduate study in Psychiatry.

The Association annually contributes a $200 scholarship for each of the undergraduate medical and pre-medical years as well as four $100 bursaries for deserving students. These are awarded on the basis of scholarship, character, financial need and the likelihood of the student becoming a good practising doctor.

* * *

Plans are well under way for the Annual Graduating Banquet to be held in Hart House on June 14th. This dinner, given under the auspices of the Medical Alumni Association is in honour of the graduating class of 5T1 and special guests will include graduates of the class of 1901.

* * *

REPORT ON THE ACTIVITIES OF THE MEDICAL SOCIETY

The strength of any democratic body lies less in the planning of its elected councils than in the interest and participation of its members. The Medical Society Executive has tried to keep this thought to the fore by encouraging class presidents to effectively fulfil their role of liaison, by posting accounts of Medical Society meetings on your bulletin boards, and now by presenting this account of the manner in which it has upheld your interests.

I urge you not to underestimate your power and responsibility. Demand that you be well informed and give voice to your complaints or suggestions through your elected representatives. The latter will greet you with gratitude, and the Medical Society will be stronger through your active interest.

G. S. Cameron, *President.*

Treasurer's Committee

Following the financial failure of Panacea a committee was established to ensure a tentative bank balance of one thousand dollars ($1,000) at the close of the 1950-51 Session. With certain modifications of the budget this committee was able to achieve its objective without limiting any proposed activities. As the result of unexpected returns from the Bursar's office, and the Meds At-Home Committee, the balance will be well above the figure anticipated.

M.W.U.A.

In order to enable members of the Medical Women's Undergraduate Association to become better acquainted with each other and with women graduates, an Initiation Banquet, a Christmas Party and a discussion group on post-graduate training were held. Arrangements for summer interneships with women doctors were investigated.

The basketball, baseball and volleyball teams all reached the semi-finals, and the hockey team reached the finals in intramural competition.

Athletics

Under the guidance of R. A. (Axe) Haliburton, the Medical Athletic Association enjoyed a full, successful year. Starting with football and ending with water polo, Medsmen from every year participated actively in all sports.

The lacrosse teams' successes this year showed that interest in this sport was involving more people than ever before. It was with considerable pride that Medsmen saw their senior team capture the Dafoe Cup for the third successive season.

In the water, Meds gave promise of future strength by capturing the Freshman and Senior Inter-faculty Championships. The four water polo teams swept the league cleanly, winning all of their league games.

In hockey and basketball, successful seasons were enjoyed while in volleyball, II Meds were only bettered by Senior Skule in the finals. A squash tournament involving all years was instituted, the winner of this receiving the James Kinnear Memorial Trophy.

To culminate the year's activities, the first athletic banquet to honour our first colour athletes was held.

Medical Arts and Letters

The functions of the Society this year were modified in such a way as to afford greater opportunity for active participation in the programme by the individual medical student and to provide events in which he or she might be particularly interested and cannot find elsewhere on the campus. As a result of this policy there were fewer open meetings. In the fall Dr. Alan Bruce-Robertson showed a beautiful coloured film of the glaciers in Alaska, and Padre Herbert Leggate gave an interesting talk entitled "Youth in a Changing World".

The Glee Club was brought within the Society and the regular Thursday 5 o'clock sessions continue to give pleasure and relaxation to all who attend them.

A Medical Debating Society was formed. There were two open debates, one within the faculty and the other with the U.C. Parliaments. A debate on the resolution that "methods used in modern medical education are inadequate" was also held.

Perhaps the most significant step taken with the new precept in mind was the formation of the Osler Society which meets on the fourth Thursday of every month for the presentation of papers dealing with some aspect of the history of medicine.

Camsi

Films have been shown every week throughout most of the school year, and have been very well attended. We regret that it was not possible for us to arrange facilities for more students to see these films.

Interne Placement Service was satisfactory this year; 70% of Toronto's graduating class received the hospital of their first choice. While some were not placed, there are many excellent interneships available to all.

Employment service has not been perfect, but has been of help to those students seeking summer medical work. In addition, considerable time has been spent on student apprenticeship plans with general practitioners, which may come to fruition in a year or two.

PUBLICATIONS

Medical Journal

The *Medical Journal* followed a policy of publishing student articles and outstanding practical manuscripts by graduates and clinicians.

Of the 42 papers published, 22 were written by undergraduates. Two standard features, A Problem in Diagnosis, and Humanism and Medicine, were utilized in each issue with success. More people contributed to an enlarged Abstracts section than at any time in the past. News and Notes kept readers posted on coming events and the activities of the Medical Society, Faculty and Alumni, and justified its inception of last year.

Results from soliciting advertisements reached a greater volume than at any time previously, and this was particularly noted in the quantity of coloured advertising obtained.

Bolstering the circulation list were some 170 new subscribers and there was a start made at contacting graduates of the past 20-30 years. The Journal was in exchange with about 30 universities and institutions, local and abroad.

A trophy was received through CAMSI recognizing this Journal as the best publication of a medical school in Canada for the previous year at which time Dr. G. L. Ralph, the present Consultant Editor, was Editor-in-Chief.

Palinodia

The Medical Year Book Committee, in view of the financial risk, the apparent student disinterest, the difficulty of continuing the magazine on a voluntary subscription basis and the competition with the Medical Journal for advertisements, recommended that the publication of *Palinodia* be discontinued.

SOCIAL ACTIVITIES

Medical At-Home

The annual Medical-at-Home was held on Wednesday, February 14th, 1951, from 9:00 p.m. to 1:00 a.m. at the Royal York Hotel. Music was provided by Mart Kenny and Johny Perkins. There was also featured a half hour of entertainment presented by the students and containing original skits and songs.

Paid attendance was 742 and including the patrons and guests over 750 couples were present. The dance showed a profit of $695.71. Corsages were sold at the dance bringing a profit of $104.75 to the All Varsity Aid campaign on the campus.

Freshman Reception

Early in the fall a reception was held at the Women's Union for the class of 5T6. A large turnout of freshmen listened to speeches by the Dean, members of the Medical Society Executive and Dr. Gallie, the guest speaker. Light entertainment by students, and refreshments, rounded out the evening.

Panacea

Panacea, the Medical Fall dance, was held with the purpose of stimulating interfaculty relations and, as a social function with Medicine as host, more than 40% of those attending were from other faculties. The exceptional quality of the entertainment and decorations helped make it a success. It is regrettable that an unforeseen lack of response led to a loss of approximately 250 dollars.

DAFFYDIL

Daffydil of 1950 was acclaimed by audiences and critics in general to be an overwhelming success. This year's production upheld the high standards and traditions of Daffydil that have been established in the past and contributed immeasurably to medical undergraduate life. The show presented the combined talents of approximately 200 students.

Much of the success was due to the talents of Chairman W. Monk and Director S. Bogoch, who provided much of the music and lyrics with the aid of S. Greben, S. Freeman and M. Rotenburg.

COMMITTEES

Book Committee

This committe is investigating the possibility of starting a book co-operative within the medical faculty as a service to the students. A possible organization has been planned, but the probable reduction in the price texts has not been established as yet. It is hoped by the committee that they may continue their work during the summer—establishing contacts with publishers and book concerns—so that, subject to the approval of the Medical Society, the co-operative can be set up next year.

Committee for the Assessment of the Medical Society

A committee for the assessment of the Medical Society was established early in the school year when it was felt that there was criticism of the method of administration of the Medical Society and of the manner in which it conducted its activities. Six meetings were held over a period of two months to which interested members of the Staff and Medical Society were invited to discuss problems of particular interest. The report that resulted was divided into two sections; one concerning the organization of the Medical Society itself, and the other concerning the conduct of subsidiary activities. The recommendations were discussed and accepted by the Medical Society Executive, and it is hoped that many will be put into practice by the incoming officers. A copy of this report is available through the class presidents.

Common Room Committee

An investigation was undertaken to determine what improvements were needed in the Common Rooms adjacent to the T.G.H. lecture theatre and the report was submitted to the Superintendant of buildings of the U. of T. The report listed present facilities as compared with those provided by other colleges and proposed improvements thought to be essential. The more important recommendations included lockers for the final three years of students, bookshelves, and more tables and chairs. Impending structural changes and lack of university funds for such purposes thwarted all attempts to bring about the necessary changes. However, the Medical Society believes that the report awakened the interest of the proper authorities and that these recommendations will be considered when the existing impediments are removed.

Insignia Committee

In an effort to eliminate the multiplicity of crests, emblems, and insignia within the Faculty of Medicine, a heraldic design, symbolic of Medicine, was drawn up to be used in total or in part as the official insignia of the Faculty of Medicine—graduate, undergraduate and staff. It is anticipated that it will form the basis of design for crests, rings, pins, and awards in the individual years. A replica of the symbol was on display at the Medical At-Home, and will be reproduced at a later date in the Journal.

CAMPUS ACTIVITIES

All Varsity Aid

The All Varsity Aid campaign in the Medical Society was successful beyond all expectations. Close to four thousand dollars were collected which is well over a third of the total amount collected in the whole University. The largest part of this donation came from the various departments of the Faculty, in the form of books and equipment. However the donations from the students of the Faculty are not to be overlooked; their generous donations of money and fine quality books speak for themselves.

N.F.C.U.S.

Within the Faculty, two open meetings were held in the fall—at one Bill Turner spoke on the IUS Conference; at the other there was a discussion on N.F.C.U.S., its program and possibilities. This year, the Toronto committee completed its report on textbook prices and provided 300 passages to Europe among other things. As a unit of the External Affairs Commission next year, N.F.C.U.S. will be of increased importance to the students.

Red Feather Fair

The Red Feather Fair was held early in November to raise funds for a national charity drive. The Medical booth featured a thorough physical examination in a modern clinic on the front campus. The competent approach of the undergraduates representing all six years not only delighted hundreds of Co-ed patients but also entertained the rest of those attending the Fair. After law suits were settled the booth was able to contribute $25.00 to the drive.

Volume XXVIII Index

AUTHORS

Anderson, J. E.: The Doctor in English Literature, 249
Armstrong, M. I.: Sources of Tumour Tissue for Research, 240
Atkinson, R. D.: A Problem in Diagnosis, 22, 142; The Hospital for Sick Children, 173
Auberback, M. L. A.: Some Views on General Practice, 89

Beacock, P.: A Problem in Diagnosis, 98
Bogoch, S.: Osteoporosis, 51
Boucher, H. H.: Gaits, 93
Brayley, J. L.: The Causes of Haematuria, 139
Buchanan, B. H.: Semantics in Medicine, 125

Clarke, W. T. W.: Medical History Writing, 9

Dixon, H. A.: Dermatitis Medicamentosa, 260

Foerster, D. K.: Alexander McPhedran, 244
Fowler, R. S.: Intracranial Tumours (Infants and Children), 193

Gove, D. I.: Osteoporosis, 51
Gray, A. E.: Sources of Tumour Tissue for Research, 240

Ham, A. W.: Sources of Tumour Tissue for Research, 240
Hogarth, W. J.: A Problem in Diagnosis, 203

Ignatieff, N.: What is ISS?, No. 1 cover
Irwin, A. C.: Well Water Methaemoglobinaemia in Infants, 66

Kerbel, N. C.: Hysterosalpingography, 135
Klisowsky, A.: A Problem in Diagnosis, 71

Lidsky, I.: Tumours of Haematopoietic and Lymphoid Tissues (Infants and Children), 196
Low, D. M.: Round Table Conference on Anaesthesia and Analgesia in Obstetrics, 121

Matthews, W. H. O.: A Problem in Diagnosis, 263
Moffat, F. L.: Low Back Pain and Treatment by Manipulation, 230

Ramcharan, A.: Hypertensive Disease in Pregnancy, 59

Scarlett, E. P.: A Reaffirmation, 17
Setterington, E. M.: Cough, 163
Shulman, A. J.: Alcohol Addiction, 219
Simpson, W. J. K.: Selye's General Adaptation Syndrome, 130
Smith, R. L.: The Hospital for Sick Children, 173

Tasker, R. R.: Potentially Fatal Neoplasms (Infants and Children), 188
Turvey, S. E. C.: Gaits, 93

Van Wyck, H. B.: Humanism and Medicine, 34, 73, 104, 147, 208, 268

Watson-Jones, Sir R.: Soft Tissue Injuries in the Limb, 24
Wells, B. S.: Investigation of a Neurological Patient, 237
Wilson, G. McL.: The Doctor's Bag, 169
Witzel, S. H.: Erythroblastosis Foetalis, 1
Wrong, N. M.: Dermatological Problems in Children, 182

SUBJECTS

A Reaffirmation, 17
Abstracts, 40, 80, 112, 152, 212, 273
Activities of the Medical Society, Report on, 281
Alcohol Addiction, 219
Alexander McPhedran, 244
Anaesthesia and Analgesia in Obstetrics, 121

Causes of Haematuria, The, 139
Childhood, Tumours of Infancy and, 188
Children, Dermatological Problems in, 182
Children, The Hospital for Sick, 173
Class of 5T1, The, 254
Cough, 163

Dermatitis Medicamentosa, 260
Dermatological Problems in Children, 182
Diagnosis, A Problem in, 22, 71, 98, 142, 203, 263
Doctor in English Literature, The, 249
Doctor's Bag, The, 169

Editorials, 32, 69, 101, 145, 266
English Literature, The Doctor in, 249
Erythroblastosis Foetalis, 1

Gaits, 93
General Adaptation Syndrome, Selye's, 130
General Practice, Some Views on, 89

Haematuria, The Causes of, 139
History Writing, Medical, 9
Hospital for Sick Children, The, 173
Humanism and Medicine: The Post-Renaissance World, 34; William Harvey and the Century of Genius, 73; British Clinical Medicine in the 17th Century and Thomas Sydenham, 104; Surgery and Gynaecology in the 17th Century, 147, 208; Humanistic Trends in 17th Century Thought, 268
Hypertensive Disease in Pregnancy, 59

Infancy and Childhood, Tumours of, 188
Infants, Well Water Methaemoglobinaemia in, 66
Injuries in the Limb, Soft Tissue, 24
Investigation of a Neurological Patient, 237
ISS?, What is, No. 1 cover
Limb, Soft Tissue Injuries in the, 24
Low Back Pain and Treatment by Manipulation, 230
McPhedran, Alexander, 244
Medical History Writing, 9
Medicamentosa, Dermatitis, 260
Medicine, Semantics in, 125

Methaemoglobinaemia, in Infants, Well Water, 66

Obstetrics, Anaesthesia and Analgesia in, 121
Osteoporosis, 51

Pain, Low Back, and Treatment by Manipulation, 230
Pregnancy, Hypertensive Disease in, 59
Problem in Diagnosis, A, 22, 71, 98, 142, 203, 263
Problems in Children, Dermatological, 182

Reaffirmation, A, 17
Report on the Activities of the Medical Society, 281
Research, Sources of Tumour Tissue for, 240
Round Table Conference on Anaesthesia and Analgesia in Obstetrics, 121

Selye's General Adaptation Syndrome, 130
Semantics in Medicine, 125
Sick Children, The Hospital for, 173
Soft Tissue Injuries in the Limb, 24
Some Views on General Practice, 89
Sources of Tumour Tissue for Research, 240

Tumour Tissue for Research, Sources of, 240
Tumours of Infancy and Childhood: Potentially Fatal Neoplasms, 188; Intracranial Tumours, 193; Tumours of Haematopoietic and Lymphoid Tissues, 196

Well Water Methaemoglobinaemia in Infants, 66
What is ISS?, No. 1 cover

The LONG SORE-THROAT season is here!

May we suggest

"CILLENTA"
THROAT LOZENGES

No other penicillin preparation
for oral therapy is offered in such
a wide variety of potencies
and package sizes.

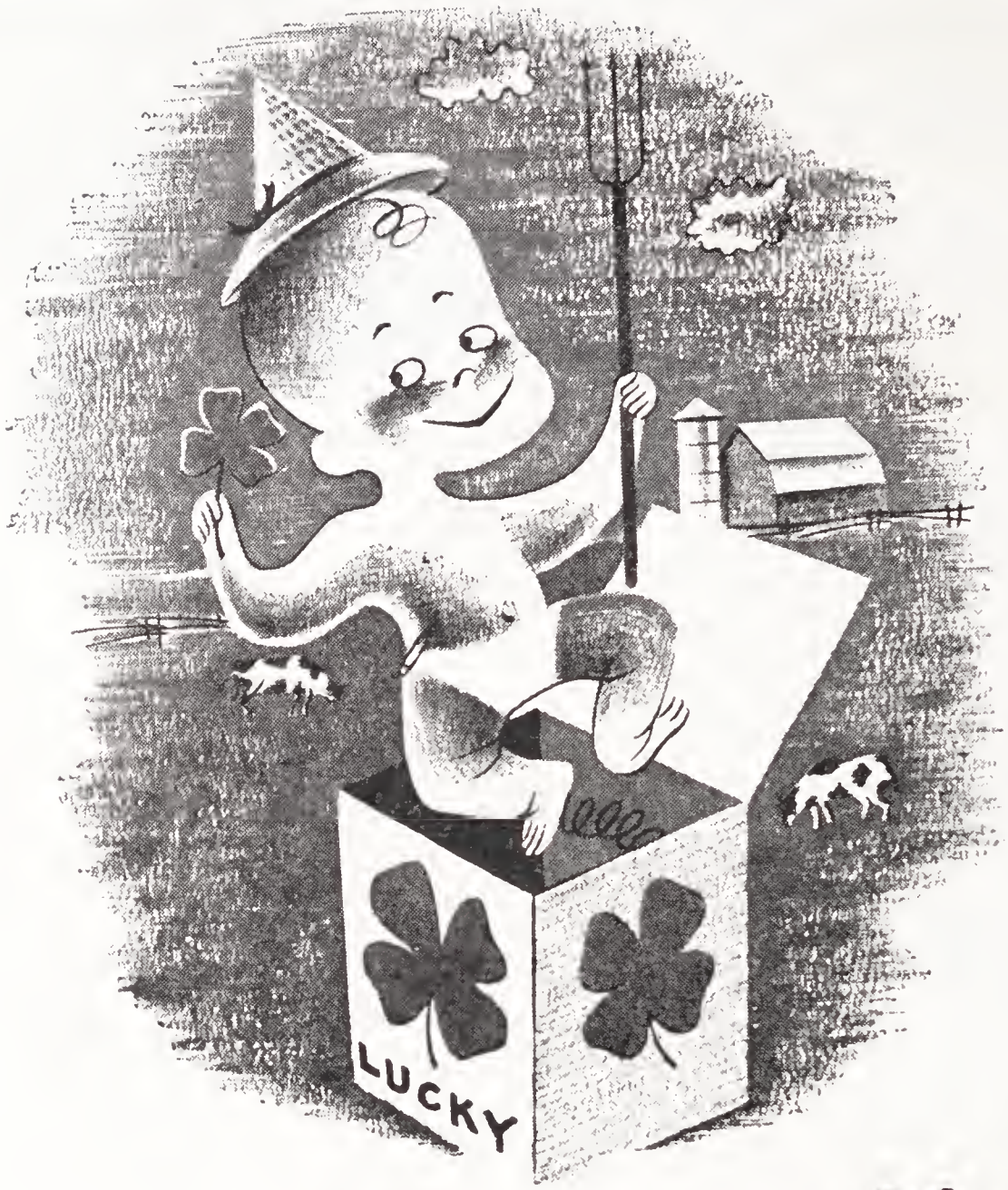
Ayerst

AYERST, McKENNA & HARRISON LIMITED

Biological and Pharmaceutical Chemists

MONTREAL CANADA

752



Why Lucky?...

Lucky is the infant who starts
his life as an Infantol baby
For Infantol is complete protection
against vitamin deficiencies
during the formative years.

Infantol

ADVANTAGES

1. complete protection
2. water-miscible
3. pleasant to take
4. inexpensive

frank w. horner limited

FOR INTERNAL AND EXTERNAL USE

ANTI-HAEMORRHAGIC SISTOSAN

Non-Toxic Non-Irritating Hemostatic of rapid action

Orally: Massive Gastro-intestinal haemorrhage, Post partum haemorrhage, Hemoptysis, Hematurias, etc., have been promptly checked with this Anti-haemorrhagic.

Literature on request.

FOR TOPICAL AND ORAL USE

SISTOSAN

Distributed by:

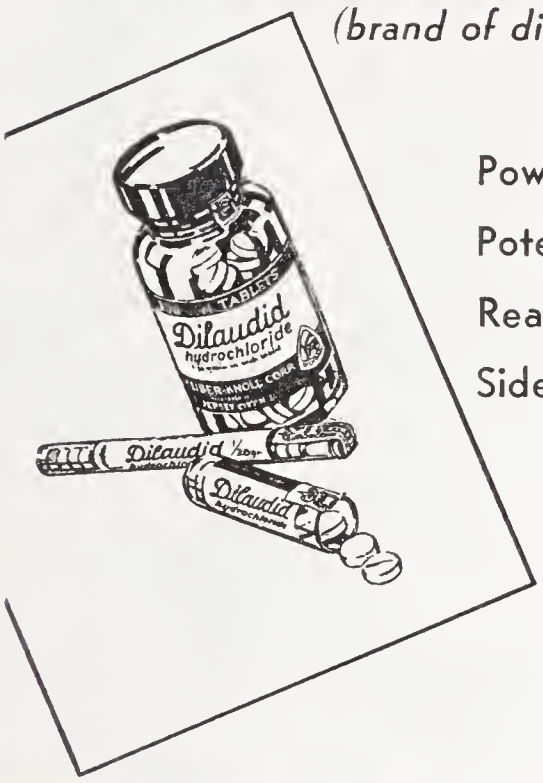
THE STEVENS COMPANIES

TORONTO WINNIPEG CALGARY VANCOUVER

Dilaudid hydrochloride

(brand of dihydromorphinone hydrochloride)

COUNCIL ACCEPTED



Powerful opiate analgesic - dose, 1/32 grain to 1/20 grain.

Potent cough sedative - dose, 1/128 grain to 1/64 grain.

Readily soluble, quick acting.

Side effects, such as nausea and constipation, seem less likely to occur.

An opiate, has addictive properties.

Dependable for relief of pain and cough, not administered for hypnosis.

● Dilaudid, T. M. Reg. Canada

Product of Bilhuber Knoll Corp., Orange, N. J.

MERCK & CO. Ltd. Selling Agents **MONTREAL**

Poly-Vi-Sol Tri-Vi-Sol Ce-Vi-Sol

for their varying vitamin needs . . .

	VITAMIN A	VITAMIN D	ASCORBIC ACID	THIAMINE	RIBOFLAVIN	NIACINAMIDE
POLY-VI-SOL each 0.6 cc. supplies:	5000 units	1000 units	50 mg	1 mg.	0.8 mg.	5 mg.
TRI-VI-SOL each 0.6 cc. supplies:	5000 units	1000 units	50 mg.			
CE-VI-SOL each 0.5 cc. supplies:			50 mg.			

3 water-soluble liquid vitamin preparations...

pleasant tasting, convenient, economical. Available in 15 and 50 cc. bottles with calibrated droppers.

MEAD'S

MEAD JOHNSON & CO.
OF CANADA, LIMITED
BELLEVILLE, ONTARIO

Announcing a new arrival in the Heinz Baby Food Family pre-cooked Barley Cereal

You know all are good because they're Heinz

Like all the Cereals, Strained Foods and Junior Foods that Heinz prepares especially for babies, the new Heinz Pre-Cooked Barley Cereal is a quality product that doctors can recommend with complete confidence. It is cooked under the most scientific conditions and constant checking in the Heinz Quality Control Laboratories is a further precaution which assures uniform high quality.

ANALYSIS

Total carbohydrates other than Crude Fibre	74.3%
Proteins (N x 6.25)	11.7%
Total Sugar as Sucrose	9.25%
Fat (acid hydrolysis)	2.58%
Crude Fibre	1.20%
Moisture	6.0%
Minerals	4.4%
Calcium	1.03%
Phosphorus	0.74%
Iron	0.034%
Copper	0.00047%
Sod. Cloride	1.01%
Niacin	22.8 mg per 100 grams
Thiamine Hydrochloride	1.21 mg per 100 grams
Calories per 100 gms.	364
Calories per ounce	103

INGREDIENTS

Barley, Separated Milk Powder, Malt Syrup, Sugar, Salt, Di-Calcium Phosphate, Calcium Carbonate, Iron Salt, Nicotinic Acid, Thiamine Hydrochloride.

Write H. J. Heinz Company of Canada Ltd., Dept. SP., 520 Dupont St., Toronto, for a kit of samples, recipes and other information.

HEINZ *Baby Foods* **57**

TWOFOLD PROTECTION

Ramses

TRADE MARK REG.

VAGINAL JELLY

Provides the patient with twofold protection:

1 Occlusive action persists for 10 hours.

2 Immobilizing time the fastest recognized under the Brown and Gamble technique.

The crystal clarity and agreeable odor of "RAMSES"* Vaginal Jelly appeal to the patient's esthetic sense. There is no better product available.

Complete Literature to Physicians on Request.

JULIUS SCHMID, (Canada) LTD.

31 Teraulay Street

Toronto, Ontario

*The word "RAMSES" is a registered trademark